Mathematics - primary 4

Second term

2023 / 2024

Unit 9: Fractions

Lessons	Topics
Lessons 1 - 3	• Composing and decomposing fractions
Lessons 4	• Types of fractions
Lessons 5 - 7	• Adding and subtracting fractions
Lessons 8	• Comparing and ordering fractions
Lessons 10 - 11	• Benchmark fractions
Lessons 9, 12, 13, 14	• Multiplying fractions by 1 or whole number • Equivalent fractions

Unit 10: Decimals

Lessons	Topics
Lessons 1 - 2	• Decimal fractions
Lessons 3 - 4	• Place value of decimals • Different forms of decimals
Lessons 5 - 6	• Same value in different forms
Lessons 7	• Equivalent decimals
Lessons 8 - 9	• Comparing decimals
Lessons 10 - 11	• Adding fractions with denominators 10 and 100

Unit 11: Graphs

Lessons	Topics
Lessons 1	• Different graphs
Lessons 2 - 3	• Creating graphs

Unit 12: Geometry

Lessons	Topics
Lessons 1 - 2	• Geometric concepts • The relation between two lines
Lessons 3 - 4	• symmetry
Lessons 5 - 6	• Classifying angles • Drawing angles
Lessons 7 - 8	• Classifying triangles • Drawing triangles
Lessons 9	• Classifying quadrilaterals

Unit 13: Angles of a circle

Lessons	Topics
Lessons 1	• Types of angles in a circle
Lessons 2	• Measuring angles using a circle model
Lessons 3 - 4	• Measuring angles using a protractor
Lessons 5 - 7	• Drawing angles using a protractor • Classifying triangles using geometric tools

Unit 9: Fractions

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Composing and decomposing fractions



Fraction:

- Fraction represents the parts of a whole.

$\frac{3}{5}$ ← Numerator / ← Denominator

- **Numerator:** The number of equal parts you have (shaded parts).
- **Denominator:** The number of all equal parts.
- **Unit fraction:** a fraction has a numerator of 1. EX: $\frac{1}{5}$, $\frac{1}{2}$
- **Proper fraction:** a fraction its numerator is less than its denominator.
  EX: $\frac{3}{7}$, $\frac{1}{4}$
- All unit fractions are proper fractions.



Writing and reading fraction:

Model of fraction	Writing fraction	Reading fraction
1	1	One whole
$\frac{1}{2}$	$\frac{1}{2}$	one half
$\frac{1}{3}$	$\frac{1}{3}$	one third
$\frac{1}{4}$	$\frac{1}{4}$	one fourth
$\frac{1}{5}$	$\frac{1}{5}$	one fifth
$\frac{1}{6}$	$\frac{1}{6}$	one sixth
$\frac{1}{7}$	$\frac{1}{7}$	one seventh

$\frac{1}{8}$ (bar divided into 8 parts)	$\frac{1}{8}$	one eighth
$\frac{1}{9}$ (bar divided into 9 parts)	$\frac{1}{9}$	one ninth
$\frac{1}{10}$ (bar divided into 10 parts)	$\frac{1}{10}$	one tenth

Examples:

$\frac{3}{4}$	three fourths

$\frac{5}{7}$	five sevenths

Composing fractions:

- means put fractions together to make a new fraction.



$$\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{3}{4}$$

Examples:

- $\frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{3}{4}$
- $\frac{2}{7} + \frac{3}{7} = \frac{5}{7}$
- $\frac{1}{3} + \frac{1}{3} + \frac{1}{3} = \frac{3}{3} = 1$
- $\frac{2}{5} + \frac{1}{5} + \frac{2}{5} = \frac{5}{5} = 1$

Decomposing fractions:

- means breaking a fraction into parts.

Examples:

✓ By using unit fractions:

- $\frac{5}{6} = \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6} + \frac{1}{6}$

✓ By using proper fractions:

- $\frac{5}{6} = \frac{2}{6} + \frac{3}{6}$
- $\frac{5}{6} = \frac{2}{6} + \frac{2}{6} + \frac{1}{6}$

1. Complete:

	Model	Numerator	Denominator	Fraction form	Word form
1)		....	....	....	....
2)		....	....	....	....
3)		....	....	....	....
4)		....	....	....	....
5)		....	....	....	....

2. Decompose each of the following fractions into unit fractions:

1) $\frac{3}{5}$ = ...
2) $\frac{4}{7}$ = ...
3) $\frac{7}{11}$ = ...
4) $\frac{2}{6}$ = ...
5) $\frac{4}{4}$ = ...
6) Two fifths = ...

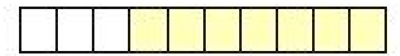
3. Decompose each of the following fractions in two ways:

1) $\frac{5}{7}$ = ... Or ....
2) $\frac{4}{8}$ = ... Or ....
3) $\frac{7}{9}$ = ... Or ....
4) $\frac{3}{4}$ = ... Or ....
5) $\frac{6}{8}$ = ... Or ....

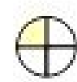
4. Complete:



1) The shaded parts = $\frac{\dots}{\dots}$



2) The fraction which represents the opposite figure = ...



3) The numerator of the fraction $\frac{5}{9}$ is ....

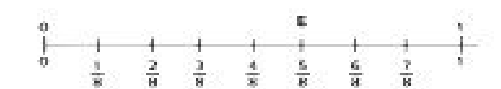
4) The denominator of the fraction $\frac{7}{11}$ is ....

5) The number of unit fractions in $\frac{8}{9}$ is ....

6) The number of unit fractions in $\frac{5}{8}$ is ....

7) The number of unit fractions in one whole = ... fifths

8) The number of unit fraction which represents point E is ....



9) $\frac{1}{5} + \frac{1}{5} + \frac{1}{5} + \frac{1}{5} =$ ....

10) $\frac{1}{8} + \frac{1}{8} + \frac{1}{8} =$ ....

11) $\frac{5}{10} = \frac{2}{10} + \frac{1}{10} +$ ....

12) $\frac{5}{\dots} = 1$

5. Answer each of the following:

1) Decompose the following fraction: $\frac{3}{5}$

....

2) Samira cut a cake into 8 equal parts and ate one part of them. What is the fraction that represents the remaining parts?

....

6. Choose the correct answer:



1) The numerator of the fraction $\frac{2}{5}$ is ....

a. 1 b. 2 c. 5 d. 7

2) Which of the following represents a unit fraction?

a. $\frac{7}{4}$ b. $\frac{7}{7}$ c. $\frac{4}{7}$ d. $\frac{1}{7}$

3) Five eighths = ...

a. $\frac{5}{8}$ b. $\frac{5}{13}$ c. $\frac{8}{5}$ d. $\frac{8}{13}$



4) $\frac{5}{\dots\dots} = 1$

a. 2 b. 3 c. 5 d. 10

5) Which of the following expression is equal to $\frac{7}{9}$?

a. $\frac{1}{3}+\frac{1}{3}+\frac{5}{3}$ b. $\frac{2}{4}+\frac{5}{5}$ c. $\frac{1}{9}+\frac{2}{9}+\frac{2}{9}$ d. $\frac{4}{9}+\frac{3}{9}$

6) Which of the following expressions is the same as $\frac{5}{6}$?

a. $\frac{1}{6}+\frac{2}{6}+\frac{3}{6}+\frac{4}{6}+\frac{5}{6}$ b. $\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}+\frac{1}{6}$

c. $\frac{5}{6}+\frac{5}{6}+\frac{5}{6}+\frac{5}{6}+\frac{5}{6}$ d. $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}$

7) $\frac{3}{7}=\frac{1}{7}+\frac{1}{7}+$ ....

a. $\frac{1}{7}$ b. $\frac{1}{5}$ c. $\frac{5}{7}$ d. $\frac{7}{7}$

8) $\frac{3}{8}=$ ....

a. $\frac{1}{4}+\frac{1}{4}+\frac{1}{4}$ b. $\frac{2}{8}+1$ c. $\frac{1}{8}+\frac{1}{8}+\frac{2}{8}$ d. $\frac{1}{8}+2$

9) $\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}=$ ....

a. $\frac{3}{7}$ b. $\frac{5}{12}$ c. 1 d. $\frac{3}{5}$

10) The number of sixths in one whole = ...

a. 1 b. 5 c. 6 d. 4

11) $1=\frac{1}{7}+\frac{2}{7}+$ ....

a. $\frac{1}{7}$ b. $\frac{2}{7}$ c. $\frac{3}{7}$ d. $\frac{4}{7}$

Types of fractions



Types of fractions:

• Proper fraction:	• Improper fraction	• Mixed number
• Its numerator is less than (<) its denominator	• Its numerator is greater than (<) or equal (=) its denominator	• Formed from a whole number and a proper fraction
EX: $\frac{3}{5}$	EX: $\frac{7}{4}$	EX: $1\frac{3}{4}$



Notes:

- Any proper fraction is less than 1.
- Any improper fraction is greater than or equal to 1.
- Any whole number (except 0) can be written in the form of an improper fraction.

  EX: $1 = \frac{1}{1} = \frac{2}{2} = \frac{3}{3} = \ldots\ldots$ EX: $5 = \frac{5}{1} = \frac{10}{2} = \frac{15}{3} = \ldots\ldots$
- Any mixed number can be written as improper fraction and vice versa.



Changing between improper fraction and mixed number:

• Change from mixed number to improper fraction:
Multiply then add EX: $2\frac{1}{3}$ (× then +) $= \frac{7}{3}$

• Change from improper fraction to mixed number:
Divide EX: $\frac{5}{2} = 2\frac{1}{2}$ 2 / 4 / 6 5

1. Color to represent the following fractions:

	Fraction	Model
1)	$3\frac{1}{5}$	
2)	$\frac{3}{4}$	
3)	$2\frac{1}{3}$	
4)	$\frac{8}{6}$	
5)	$\frac{7}{2}$	
6)	$\frac{6}{3}$	

2. Write which is (proper fraction – improper fraction – mixed number):

1) $2\frac{1}{3}$ = ...
3) $\frac{7}{4}$ = ...
5) $\frac{3}{8}$ = ...
2) $\frac{6}{10}$ = ...
4) $1\frac{1}{2}$ = ...
6) $\frac{3}{3}$ = ...

3. Write as an improper fraction:

1) $3\frac{1}{2}$ = ...
3) $4\frac{1}{5}$ = ...
5) $2\frac{1}{6}$ = ...
2) $5\frac{1}{4}$ = ...
4) $3\frac{2}{5}$ = ...
6) $5\frac{1}{2}$ = ...

4. Write as a mixed number:

1) $\frac{7}{2}$ = ...
3) $\frac{13}{4}$ = ...
5) $\frac{5}{3}$ = ...
2) $\frac{17}{5}$ = ...
4) $\frac{23}{3}$ = ...
6) $\frac{14}{6}$ = ...

5. Complete:

1) The proper fraction has the numerator ...... than the denominator.

2) $\frac{7}{2}$ is a / an .... fraction

3) $3\frac{3}{4}$ = ... [in the form of an improper fraction]

4) $2\frac{1}{4}$ = ... [as an improper fraction]

5) $3\frac{2}{7}$ = ... [as an improper fraction]

6) $4\frac{3}{5} = \frac{......}{......}$

7) $\frac{17}{3}$ = ... [in the form of a mixed number]

8) $\frac{7}{5}$ = ... [as a mixed number]

9) $\frac{20}{3}$ = ... [as a mixed number]

10) $\frac{17}{4}$ = ... [as a mixed number]

11) $\frac{5}{2}$ = ... $\frac{......}{......}$

6. Choose the correct answer:

1) Which of the following is a proper fraction?

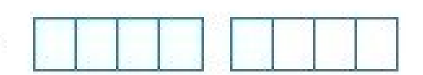
a. $\frac{3}{7}$ b. $\frac{5}{2}$ c. $1\frac{1}{3}$ d. $\frac{19}{18}$

2) Which of the following is an improper fraction?

a. $\frac{4}{9}$ b. $\frac{1}{6}$ c. $1\frac{1}{5}$ d. $\frac{4}{3}$

3) Which of the following is a mixed number?

a. $\frac{1}{7}$ b. $\frac{8}{3}$ c. $2\frac{3}{5}$ d. $\frac{2}{9}$





4) The opposite model represents ....

a. $1\frac{1}{3}$ b. $\frac{5}{5}$ c. $\frac{4}{5}$ d. $\frac{5}{4}$

5) $4\frac{1}{2}$ = ... [as an improper fraction]

a. $\frac{5}{2}$ b. $\frac{7}{2}$ c. $\frac{9}{2}$ d. $\frac{9}{4}$

6) $\frac{20}{7}$ = ... [as a mixed number]

a. $3\frac{1}{7}$ b. $2\frac{6}{7}$ c. $2\frac{1}{7}$ d. $1\frac{6}{7}$

7) Which of the following mixed numbers is equal to $\frac{6}{5}$?

a. $1\frac{1}{2}$ b. $1\frac{1}{12}$ c. $1\frac{1}{5}$ d. $1\frac{1}{6}$

8) $\frac{9}{5}$ is a / an .... fraction

a. Unit   b. Proper   c. Denominator   d. Improper

9) $\frac{3}{10}$ is a / an .... fraction

a. Mixed   b. Improper   c. Whole   d. Proper

10) The proper fraction is which its numerator .... its denominator.

a. Less than   b. Less than or equal
c. Greater than   d. Greater than or equal

11) The mixed number $3\frac{1}{2}$ is equivalent to ....

a. $\frac{9}{2}$ b. $\frac{5}{2}$ c. $\frac{3}{2}$ d. $\frac{7}{2}$

12) Which of the following fractions is greater than 1?

a. $\frac{4}{5}$ b. $\frac{7}{5}$ c. $\frac{5}{8}$ d. $\frac{9}{10}$

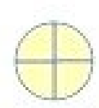
Lessons 5 - 7

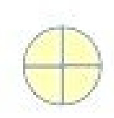
Adding and subtracting fractions

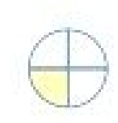


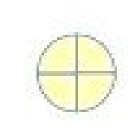
Adding fractions:

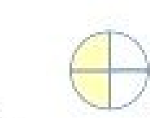
Find the sum: $2 + \frac{1}{4} + 1 + \frac{2}{4}$











$2 + \frac{1}{4} + 1 + \frac{2}{4} = 3\frac{3}{4}$

EX: $\frac{2}{5} + \frac{1}{5} = \frac{3}{5}$

EX: $\frac{4}{7} + \frac{3}{7} = \frac{7}{7} = 1$

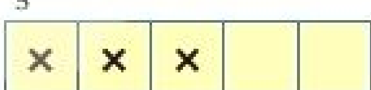
EX: $3 + \frac{1}{7} + 2 + \frac{3}{7} = 5\frac{4}{7}$

EX: $2\frac{3}{4} + 1\frac{2}{4} = 3\frac{5}{4} = 4\frac{1}{4}$



Subtracting fractions:

Find the difference: $1 - \frac{3}{5}$



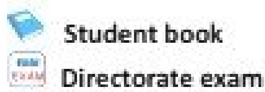
$1 - \frac{3}{5} = \frac{2}{5}$

EX: $\frac{5}{7} - \frac{2}{7} = \frac{3}{7}$

EX: $1 - \frac{1}{3} = \frac{3}{3} - \frac{1}{3} = \frac{2}{3}$

EX: $6 - 2\frac{3}{5} = 5\frac{5}{5} - 2\frac{3}{5} = 3\frac{2}{5}$

EX: $4\frac{1}{4} - 2\frac{3}{4} = 3\frac{5}{4} - 2\frac{3}{4} = 1\frac{2}{4}$


Student book
Directorate exam

Exercise 3

1. Find the result:



1) $\frac{3}{5} + \frac{2}{5} =$ ....

2) $2\frac{4}{9} + 1\frac{2}{9} =$ ....

3) $2\frac{3}{5} + 1\frac{4}{5} =$ ....

4) $\frac{10}{12} + \frac{1}{12} + 3 + 2 =$ ....

5) $4 + \frac{4}{8} + 2 + \frac{5}{8} =$ ....

6) $\frac{4}{9} + \frac{1}{9} + \frac{2}{9} + 4 =$ ......

7) $2 + 2 + \frac{3}{5} + \frac{3}{5} =$ ......

8) $\frac{3}{6} + 5 + \frac{5}{6} + 2 =$ ....

9) $\frac{2}{7} + \frac{3}{7} = \frac{\dots}{7}$

10) $\frac{5}{12} + \frac{2}{12} + \frac{6}{12} =$ ......

11) $1 + 1\frac{1}{6} =$ ....

12) $5\frac{5}{6} + 2\frac{1}{6} =$ ....

13) $3\frac{2}{5} + 1\frac{1}{5} =$ ....

14) $2\frac{1}{7} + 3\frac{3}{7} =$ ....

15) $3\frac{2}{5} + 2\frac{3}{5} =$ ....

16) $1\frac{3}{4} + \frac{1}{4} =$ ....

17) $6 + \frac{2}{5} + 2 + \frac{3}{5} =$ ....

18) $4\frac{3}{9} + 3\frac{4}{9} =$ ....

19) $4\frac{5}{6} +$ .... $= 6\frac{5}{6}$

20) $2 - \frac{1}{4} =$ ....

21) $1 - \frac{2}{8} =$ ....

22) $2 - \frac{2}{3} =$ ....

23) $3 - \frac{1}{3} =$ ....

24) $1 - \frac{2}{5} - \frac{1}{5} =$ ....

25) $3\frac{2}{5} - 2\frac{1}{5} =$ ....

26) $3 - 2\frac{1}{8} =$ ....

27) $1 - \frac{2}{5} =$ ....

28) $2\frac{6}{9} - 1\frac{2}{9} =$ ....

29) $3\frac{4}{7} - 1\frac{3}{7} =$ ....

30) $7\frac{7}{9} - 4\frac{4}{9} =$ ....

31) $1 - \frac{2}{3} =$ ....

32) $5 - 2\frac{1}{3} =$ ....

33) $1 - \frac{1}{7} - \frac{2}{7} =$ ....

34) $3\frac{2}{5} - 2\frac{1}{5} =$ ....

35) $5 - \frac{1}{10} =$ ....

36) $8\frac{3}{4} - 3\frac{1}{4} =$ ....

37) $3\frac{5}{7} - 2\frac{1}{7} =$ ....

38) $6\frac{2}{5} - 2\frac{4}{5} =$ ....

2. Answer the following:



1) Salma went to market and bought $3\frac{1}{8}$ kg of banana and $1\frac{5}{8}$ kg of apple. **How many kilograms did Salma buy?**

....



2) Seif studied math for $1\frac{1}{4}$ hour and science for $\frac{3}{4}$ hour.
How many hours did seif study in all?

....



3) Manar is making a drink that requires $\frac{5}{8}$ liter of milk, and she has only $\frac{2}{8}$ liter of milk. **How much milk does Manar need more to make the drink?**

....



4) Waleed ate $2\frac{3}{8}$ of cakes and Ali ate $1\frac{1}{8}$ of cakes of the same size, **what is the difference between what Waleed ate and Ali ate?**

....



5) Mona has $24\frac{1}{2}$ pounds, she bought a doll for $22\frac{1}{2}$ pounds.
How much money left with her?

....



6) Hady has $3\frac{1}{4}$ cookies: he gave $2\frac{3}{4}$ to his sister. **How many cookies does he have left?**

....

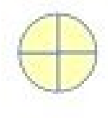
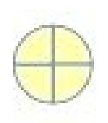
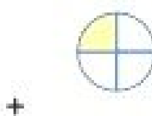
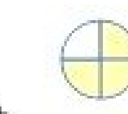


7) Zain drank $1\frac{3}{8}$ liters of water, and Hamza drank $1\frac{5}{8}$ liters of water, **what did the total liters of water that Zain and Hamza drink?**

....

3. Choose the correct answer:



1)  +  +  +  = ...

a. $2\frac{1}{4}$ b. $2\frac{1}{2}$ c. $2\frac{3}{4}$ d. 3

2) $\frac{5}{9} + \frac{4}{9} = \dots\dots$

a. $\frac{1}{9}$ b. $\frac{9}{18}$ c. 1 d. $\frac{20}{81}$

3) $4 + \frac{7}{11} + 2 + \frac{1}{11} = \dots\dots$

a. $6\frac{8}{11}$ b. $6\frac{8}{22}$ c. $2\frac{6}{11}$ d. $7\frac{8}{11}$

4) $1\frac{1}{4} + \frac{3}{4} = \dots\dots$

a. $2\frac{1}{4}$ b. 2 c. 4 d. $2\frac{3}{4}$

5) $\frac{1}{5} + \frac{3}{5} + \frac{\dots}{5} = 1$

a. 1 b. 2 c. 5 d. 7

6) $4 + \frac{1}{3} = \dots\dots$

a. $4\frac{1}{3}$ b. $\frac{4}{3}$ c. $\frac{12}{3}$ d. $5\frac{1}{3}$

7) $\frac{6}{10} - \frac{2}{10} = \dots\dots$

a. $\frac{8}{10}$ b. $\frac{4}{10}$ c. $\frac{4}{20}$ d. $\frac{6}{20}$

8) $6 - 3\frac{1}{4} = \dots\dots$

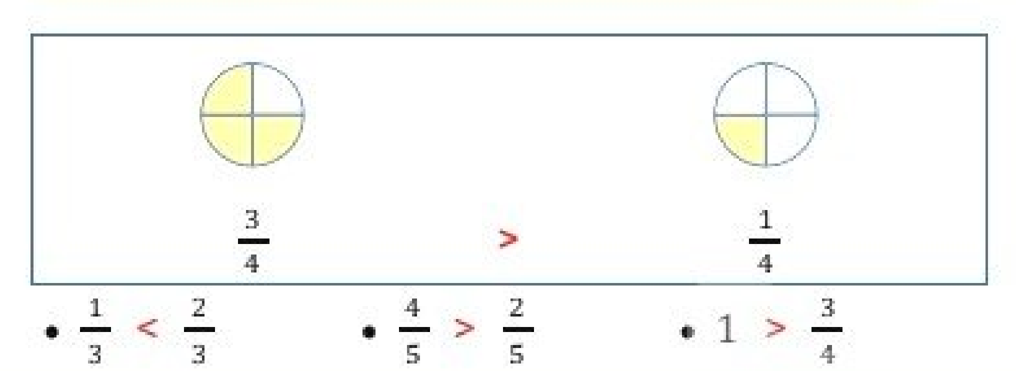
a. $3\frac{1}{4}$ b. $2\frac{3}{4}$ c. $9\frac{1}{4}$ d. $2\frac{1}{4}$

9) $\frac{1}{5} + \frac{2}{5} - \frac{2}{5} = \dots\dots$

a. $\frac{2}{5}$ b. $\frac{1}{5}$ c. 1 d. $\frac{6}{5}$

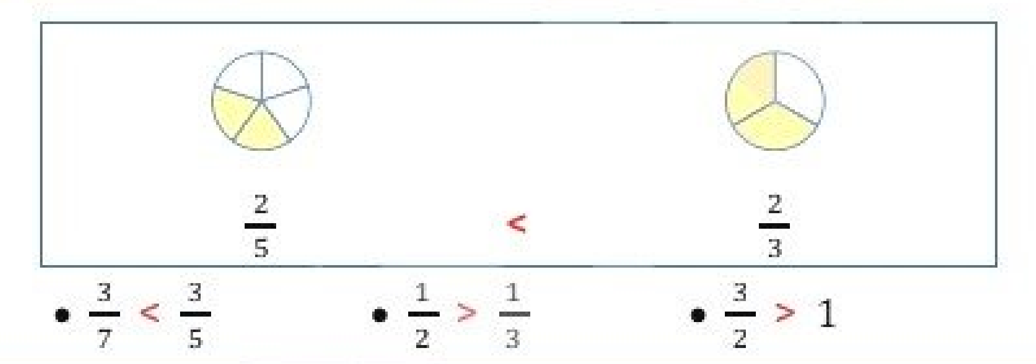
Comparing and ordering fractions

Comparing fractions with like denominators



- $\frac{1}{3} < \frac{2}{3}$
- $\frac{4}{5} > \frac{2}{5}$
- $1 > \frac{3}{4}$

Comparing fractions with like numerators:



- $\frac{3}{7} < \frac{3}{5}$
- $\frac{1}{2} > \frac{1}{3}$
- $\frac{3}{2} > 1$

Ordering fractions with like denominators:

EX: Write in an ascending order: $\frac{3}{9}$, $\frac{1}{9}$, $\frac{5}{9}$, $\frac{2}{9}$ and $\frac{7}{9}$

The order: $\frac{1}{9}$, $\frac{2}{9}$, $\frac{3}{9}$, $\frac{5}{9}$, $\frac{7}{9}$

Ordering fractions with like numerators:

EX: Write in an ascending order: $\frac{3}{4}$, $\frac{3}{6}$, $\frac{3}{2}$, $\frac{3}{5}$ and $\frac{3}{8}$

The order: $\frac{3}{8}$, $\frac{3}{6}$, $\frac{3}{5}$, $\frac{3}{4}$, $\frac{3}{2}$

1. Complete by using > , < or =:

 1) $\frac{1}{4}$ ...... $\frac{3}{4}$

 2) $\frac{3}{5}$ ...... $\frac{5}{5}$

 3) $\frac{5}{6}$ ...... $\frac{4}{6}$

4) $\frac{9}{5}$ ...... $\frac{9}{7}$

5) $\frac{2}{5}$ ...... $\frac{2}{6}$

6) $\frac{3}{4}$ ...... $\frac{3}{6}$

7) $\frac{1}{4}$ ...... $\frac{1}{3}$

8) $\frac{3}{6}$ ...... $\frac{4}{6}$

 9) $\frac{5}{6}$ ...... $\frac{5}{8}$

 10) $\frac{4}{8}$ ...... $\frac{4}{5}$

11) $\frac{5}{6}$ ...... $\frac{3}{6}$

 12) $\frac{1}{7}$ ...... $\frac{2}{2}$

 13) $\frac{5}{7}$ ...... $\frac{5}{8}$

 14) $\frac{3}{11}$ ...... $\frac{3}{7}$

2. Order the following fractions in an ascending order:

 1) $\frac{3}{5}, \frac{3}{8}, \frac{3}{3}, \frac{3}{6}, \frac{3}{12}$ ....

 2) $\frac{4}{11}, \frac{1}{11}, \frac{9}{11}, \frac{6}{11}$ ....

 3) $\frac{2}{7}, \frac{4}{7}, \frac{8}{7}, \frac{3}{7}$ ....

 4) $\frac{2}{5}, \frac{2}{9}, \frac{2}{3}, \frac{2}{10}, \frac{2}{4}$ ....

 5) $\frac{5}{3}, \frac{1}{3}, 1$ ....

 6) $\frac{3}{5}, \frac{3}{10}, \frac{3}{4}, \frac{3}{9}, \frac{3}{7}$ ....

3. Answer the following:

 1) Each of Othman and Ramzy has bar of sweet of the same size. If Othman ate $\frac{4}{6}$ of his bar and Ramzy ate $\frac{4}{8}$ of his bar. **Who ate more?**

....

4. Choose the correct answer:



1) $\frac{2}{7}$ ...... $\frac{5}{7}$

a. $>$ b. $<$ c. $=$ d. Otherwise

2) $\frac{3}{5}$ ...... $\frac{3}{7}$

a. $>$ b. $<$ c. $=$ d. Otherwise



3) $\frac{1}{4} < \frac{1}{\ldots\ldots}$

a. 8 b. 7 c. 5 d. 3



4) Which relation is correct?

a. $\frac{7}{12} > \frac{7}{9}$ b. $\frac{7}{8} < \frac{7}{10}$ c. $\frac{7}{13} < \frac{7}{11}$ d. $\frac{7}{15} > \frac{7}{9}$



5) Which relation is correct?

a. $\frac{3}{7} > \frac{5}{7}$ b. $\frac{6}{7} < \frac{4}{7}$ c. $\frac{1}{7} > \frac{3}{7}$ d. $\frac{1}{7} < \frac{5}{7}$



6) $\frac{4}{9} >$ ......

a. $\frac{7}{9}$ b. $\frac{5}{9}$ c. $\frac{1}{9}$ d. $\frac{8}{9}$



7) $\frac{2}{9} <$ ......

a. $\frac{2}{7}$ b. $\frac{2}{10}$ c. $\frac{2}{11}$ d. $\frac{2}{12}$



8) $\frac{3}{6}$ ...... $\frac{3}{4}$

a. $>$ b. $<$ c. $=$ d. Otherwise

9) $\frac{5}{8}$ 1

a. $>$ b. $<$ c. $=$ d. Otherwise

10) $\frac{7}{3}$ 1

a. $>$ b. $<$ c. $=$ d. Otherwise

Benchmark fractions



Benchmark fractions

- 0 , $\frac{1}{2}$, 1 are benchmark fractions.
- We find the fraction is closer to which benchmark fractions 0 , $\frac{1}{2}$, 1

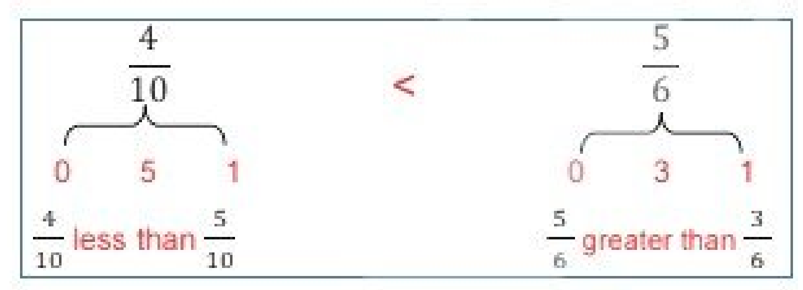
EX: Find benchmarks for $\frac{1}{8}$, $\frac{3}{8}$ and $\frac{5}{8}$

$0 \quad \frac{1}{8} \quad \frac{1}{2} \quad 1$	$0 \quad \frac{3}{8} \quad \frac{1}{2} \quad 1$	$0 \quad \frac{1}{2} \quad \frac{7}{8} \quad 1$
So, $\frac{1}{8}$ is closer to **0**	So, $\frac{3}{8}$ is closer to $\frac{1}{2}$	So, $\frac{7}{8}$ is closer to **1**



Comparing fractions using benchmark:

EX: Compare $\frac{4}{10}$ and $\frac{5}{6}$ using benchmark fractions





Ordering fractions using benchmark:

EX: Put the fractions $\frac{6}{8}$, $\frac{5}{10}$, $\frac{2}{6}$ in an ascending order

- $\frac{6}{8}$ is greater than (half) $\frac{4}{8}$
- $\frac{5}{10}$ is equal to (half) $\frac{5}{10}$
- $\frac{2}{6}$ is less than (half) $\frac{3}{6}$

The order: $\frac{2}{6}$, $\frac{5}{10}$, $\frac{6}{8}$

1. Choose the correct answer:


1) The fraction $\frac{5}{8}$ is nearest to benchmark fraction ....

a. $\frac{1}{2}$ b. $1\frac{1}{2}$ c. 1 d. 0


2) $\frac{7}{12}$ is closer to the benchmark fraction ....

a. 1 b. $\frac{1}{2}$ c. 0 d. $\frac{1}{4}$


3) $\frac{8}{9}$ is closer to the benchmark fraction ....

a. 2 b. 1 c. 0 d. $\frac{1}{2}$


4) The fraction $\frac{5}{6}$ is closed to .... [use the benchmark fraction]

a. 0 b. $\frac{8}{5}$ c. $1\frac{1}{2}$ d. 1


5) Which of the following is closer to the benchmark fraction $\frac{1}{2}$?

a. $\frac{3}{8}$ b. $\frac{2}{8}$ c. $\frac{1}{8}$ d. $\frac{7}{8}$


6) $\frac{11}{12}$ is closer to the benchmark fraction ....

a. 1 b. $\frac{1}{2}$ c. 0 d. $\frac{1}{4}$


7) $\frac{1}{9}$ is closer to the benchmark fraction ....

a. 1 b. $\frac{1}{2}$ c. 0 d. Otherwise

2. Answer the following:


1) Arrange in ascending order: $\frac{5}{10}$, $\frac{1}{6}$, $\frac{8}{9}$

....


2) Using the benchmark fraction to arrange in descending order:

$\frac{3}{10}$, $\frac{6}{8}$, $\frac{3}{6}$

....

• Multiplying fractions by 1 or whole number
• Equivalent fractions

Multiplying a fraction by 1:

- When multiply any number by 1, the product is equal to that number.

  EX: $25 \times 1 = 25$ EX: $\frac{1}{2} \times 1 = \frac{1}{2}$ EX: $1 \times \frac{5}{7} = \frac{5}{7}$

- We can write 1 as a fraction in many ways: $1 = \frac{1}{1} = \frac{2}{2} = \frac{3}{3} = \ldots\ldots$

  EX: $12 \times \frac{3}{3} = 12$ EX: $\frac{7}{9} \times \frac{5}{5} = \frac{7}{9}$

- 1 is the multiplicative identity element.

Multiplying a fraction by a whole number:

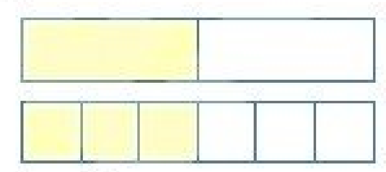
- When we multiply a whole number by a fraction, we multiply the whole by the numerator with the same denominator.

  EX: $3 \times \frac{1}{4} = \frac{3}{4}$ EX: $3 \times \frac{2}{9} = \frac{6}{9}$ EX: $\frac{1}{5} \times 4 = \frac{4}{5}$



Equivalent fraction:

- **Equivalent fractions:** are the fractions which have the same amount in different forms.



- $\frac{1}{2} = \frac{3}{6}$
- **So,** $\frac{1}{2}$ is equivalent to $\frac{3}{6}$



Find equivalent fraction:

- To find equivalent fraction, we multiply or divide both the numerator and denominator of a fraction by any number (except zero).

EX: **Find two equivalent fractions of** $\frac{3}{6}$

- $\frac{3 \times 2}{6 \times 2} = \frac{6}{12}$
- $\frac{3 \div 3}{6 \div 3} = \frac{1}{2}$



Find missing numerator or denominator:

- To find the missing, decide is we multiply or divide by a number then do the same with the other

EX: **Find the missing of:**

- $\frac{2}{5} = \frac{.....}{15}$

$\frac{2}{5} = \frac{6}{15}$ (×3)

- $\frac{6}{12} = \frac{2}{......}$

$\frac{6}{12} = \frac{3}{6}$ (÷2)

1. Find an equivalent fraction of each:

1) $\frac{1}{4}$ = ...

2) $\frac{3}{9}$ = ...

3) $\frac{2}{3}$ = ...

4) $\frac{5}{20}$ = ...

5) $\frac{10}{15}$ = ...

6) $\frac{4}{7}$ = ...

7) $\frac{2}{5}$ = ...

8) $\frac{3}{3}$ = ...

9) $\frac{6}{12}$ = ...

10) $\frac{7}{21}$ = ...

2. Complete:

1) $\frac{3}{4} \times \frac{5}{5}$ = ...

2) $\frac{3}{4} \times \frac{2}{2}$ = ...

3) $\frac{2}{3} \times 1$ = ...

4) $\frac{5}{6} \times$ ...... $= \frac{5}{6}$

5) $\frac{5}{8} \times \frac{\dots}{3} = \frac{15}{24}$

6) $\frac{4}{7} \times \frac{\dots}{\dots} = \frac{16}{28}$

7) $4 \times \frac{1}{9}$ = ...

8) $7 \times \frac{1}{9}$ = ...

9) $3 \times \frac{2}{9}$ = ...

10) $4 \times \frac{1}{5}$ = ...

11) $\frac{1}{8} \times 7$ = ...

12) $\frac{3}{7} \times 3$ = ...

13) $4 \times \frac{1}{2}$ = ...

14) $2 \times \frac{1}{5}$ = ...

15) $5 \times \frac{1}{7}$ = ...

16) $\frac{5}{6} \times$ ...... $= 0$

17) $\frac{3}{4} = \frac{\dots}{12}$

18) $\frac{2}{3} = \frac{10}{\dots}$

19) $\frac{2}{9} = \frac{10}{\dots}$

20) $\frac{5}{9} = \frac{\dots}{27}$

21) $\frac{12}{18} = \frac{4}{\dots}$

22) $\frac{2}{3} = \frac{\dots}{9}$

23) $\frac{20}{25} = \frac{\dots}{5}$

24) $\frac{2}{3} = \frac{\dots}{18}$

25) $\frac{5}{15} = \frac{15}{\dots}$

26) $\frac{2}{5} = \frac{\dots}{16}$

Student book
Directorate exam

Exercise 6



9) $\frac{5}{7} = \frac{\dots}{21}$

10) $\frac{10}{70} = \frac{\dots}{7}$

11) $\frac{8}{10} = \frac{4}{\dots}$

12) $\frac{3}{18} = \frac{\dots}{6}$

13) $\frac{4}{5} = \frac{24}{\dots}$

22) $\frac{4}{7} = \frac{\dots}{28}$

23) $\frac{12}{20} = \frac{\dots}{5}$

24) $\frac{5}{8} = \frac{\dots}{16}$

25) $\frac{8}{10} = \frac{\dots}{5}$

26) $\frac{3}{5} = \frac{\dots}{\dots}$

3. Answer the following:



1) Nabil had 9 cookies. $\frac{2}{3}$ of them were chocolate chip. **How many cookies were chocolate chip?**

....



2) Ahmed has 15 cakes. $\frac{3}{5}$ of them are covered with chocolate. **How many chocolate cakes are there?**

....



3) Youssef has 18 apples. Two third of the apples are red. **How many apples are red?**

....



4) Khalid ate $\frac{1}{6}$ from the candy box, so if there were 24 pieces in the box, **how many pieces did Khalid eat?**

....



5) Sahar has 9 cakes, $\frac{2}{3}$ of them are chocolate. **How many chocolate cakes are there?**

....



6) The day is 24 hours, how many hours are there in $\frac{1}{3}$ day?

....



7) How many sevenths in the number 3?

....

4. Choose the correct answer:



1) $\frac{1}{3} = \frac{\dots}{9}$

a. 2   b. 7   c. 3   d. 4



2) $\frac{5}{8} = \frac{\dots}{16}$

a. 5   b. 10   c. 12   d. 13



3) The fraction $\frac{5}{6}$ is equivalent to ....

a. $\frac{10}{6}$ b. $\frac{10}{18}$ c. $\frac{25}{30}$ d. $\frac{5}{12}$



4) The fraction $\frac{1}{2}$ is equivalent to ....

a. $\frac{1}{3}$ b. $\frac{3}{6}$ c. $\frac{2}{5}$ d. $\frac{3}{8}$



5) Which of the following is true?

a. $\frac{5}{15} = \frac{1}{3}$ b. $\frac{1}{16} = \frac{3}{18}$ c. $\frac{7}{8} = \frac{8}{7}$ d. $\frac{3}{13} = \frac{4}{4}$



6) Which fraction is Not equivalent to $\frac{1}{2}$?

a. $\frac{6}{12}$ b. $\frac{5}{15}$ c. $\frac{2}{6}$ d. $\frac{1}{3}$



7) $1 \times \frac{3}{7} = \dots\dots$

a. $1\frac{3}{7}$ b. $\frac{3}{7}$ c. $\frac{7}{3}$ d. 1

8) $\frac{5}{6} \times 0 = \dots\dots$

a. $\frac{5}{6}$ b. 0   c. 1   d. $\frac{6}{5}$

9) $4 \times \frac{1}{5} = \dots\dots$

a. $\frac{1}{5}$ b. $\frac{4}{5}$ c. $\frac{3}{7}$ d. $\frac{5}{8}$

10) $\frac{3}{11} \times \dots\dots = \frac{6}{11}$

a. 1   b. 2   c. 3   d. 4

Unit 10: Decimals

Lessons	Topics
Lessons 1 - 2	• Decimal fractions
Lessons 3 - 4	• Place value of decimals • Different forms of decimals
Lessons 5 - 6	• Same value in different forms
Lessons 7	• Equivalent decimals
Lessons 8 - 9	• Comparing decimals
Lessons 10 - 11	• Adding fractions with denominators 10 and 100

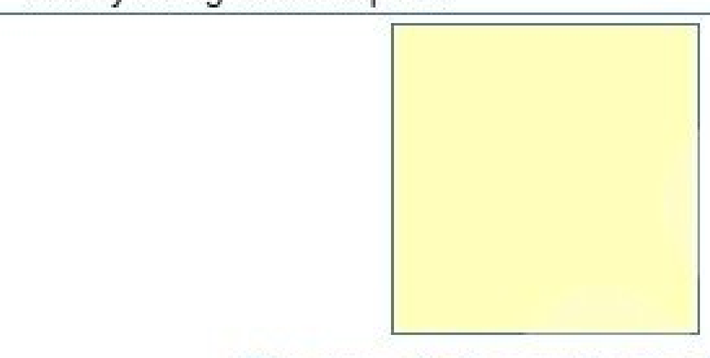
Lessons
1 - 2

Decimal fractions



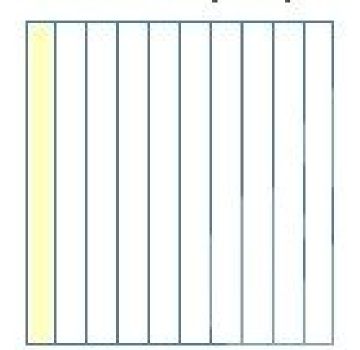
Decimal fraction:

- It is a number that its value greater than 0 and less than 1
- Decimal is another way to write a fractions with denominators of 10 or 100 by using decimal point.



The one whole can be divided into:

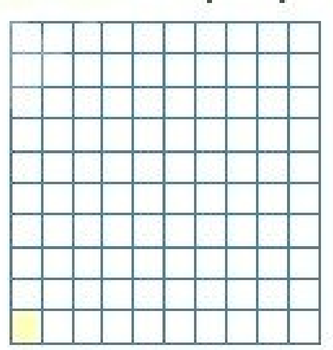
- **10 equal parts:**



The shaded part:

- **Writing as:** $\frac{1}{10}$ or 0.1
- **Reading as:** one tenth

- **100 equal parts:**



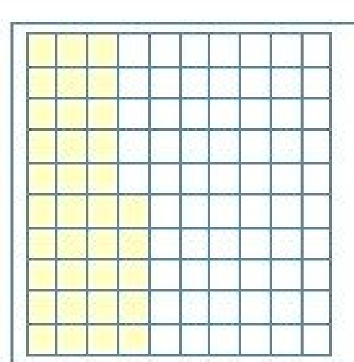
The shaded part:

- **Writing as:** $\frac{1}{100}$ or 0.01
- **Reading as:** one hundredth

EX:

Model	Fraction	Decimal
	• **Writing as:** $\frac{7}{10}$ • **Reading as:** seven tenths	• **Writing as:** 0.7 • **Reading as:** seven tenths

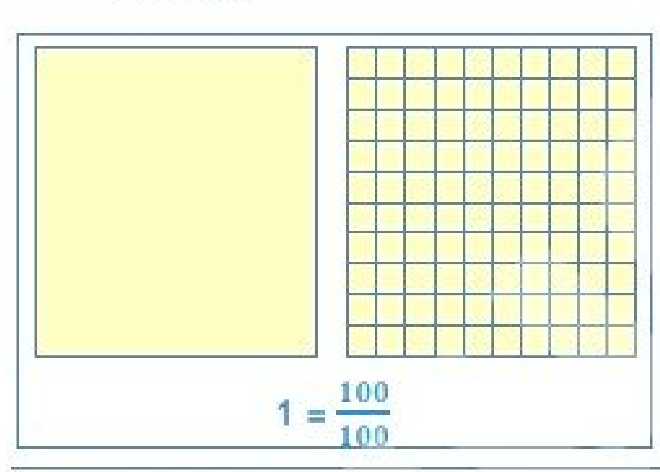
EX:



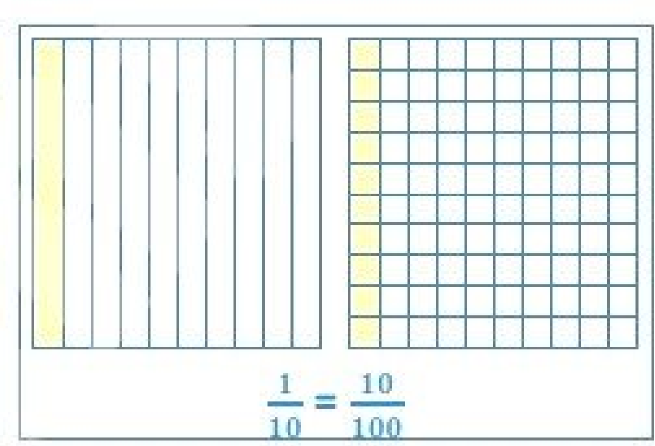
- **Writing as:** $\frac{35}{100}$
- **Reading as:** Thirty-five hundredths

- **Writing as:** 0.35
- **Reading as:** Thirty-five hundredths

Notes:



$1 = \frac{100}{100}$



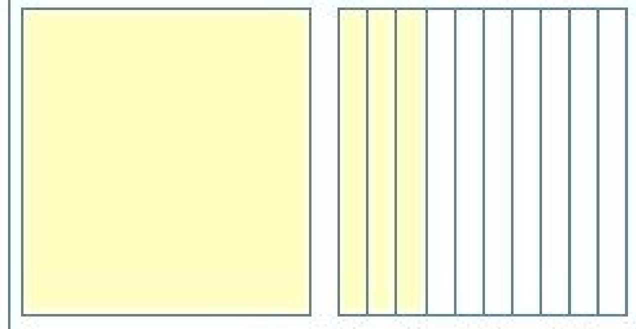
$\frac{1}{10} = \frac{10}{100}$



Decimal number:

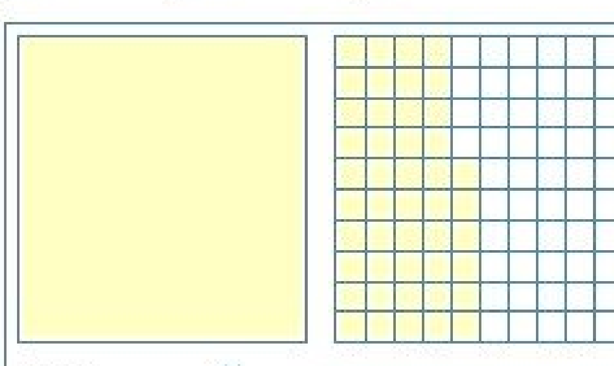
- It is a number greater than 1.
- The decimal number consists of:





Writing as: $1\frac{3}{10}$ or 1.3

Reading as: one and three tenths



Writing as: $1\frac{46}{100}$ or 1.46

Reading as: one and forty-six hundredths

1. Write the decimal of each of the colored parts:

....

....

....

....

2. Write as a decimal:



1) $\frac{2}{10}$ = ...



2) $\frac{27}{100}$ = ...

3) $\frac{5}{10}$ = ...

4) $\frac{81}{100}$ = ...

5) $3\frac{8}{10}$ = ...

6) $\frac{4}{100}$ = ...

7) $1\frac{1}{10}$ = ...

8) $7\frac{15}{100}$ = ...

9) $\frac{17}{10}$ = ...



10) $3\frac{3}{100}$ = ...

11) $\frac{35}{10}$ = ...

12) $3\frac{45}{100}$ = ...

3. Write as a fraction:

1) 0.3 = ...

2) 1.34 = ...

3) 0.6 = ...

4) 3.05 = ...

5) 1.42 = ...

6) 4.16 = ...



7) 0.07 = ...

8) 1.6 = ...

9) 2.3 = ...

10) 5.21 = ...

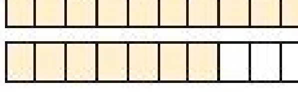
11) 5.40 = ...

12) 12.07 = ...

4. Choose the correct answer:



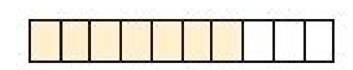
1) The decimal which represents the colored parts is ....



a. 7.1 b. 1.7 c. 7.10 d. 10.7



2) The decimal which represents the colored parts is ....



a. 0.7 b. 0.3 c. 1.3 d. 1.7



3) 0.3 = ...

a. $\frac{3}{10}$ b. $\frac{50}{10}$ c. $\frac{2}{5}$ d. $\frac{5}{2}$



4) 0.25 = ...

a. $\frac{25}{10}$ b. $\frac{25}{100}$ c. $\frac{5}{100}$ d. $2\frac{5}{10}$



5) $\frac{3}{10}$ = ... [as a decimal]

a. 0.3 b. 10.3 c. 3.01 d. 3.1



6) $\frac{15}{10}$ = ...

a. 1.5 b. 0.15 c. 10.5 d. 1.05



7) $\frac{25}{10}$ = ...

a. 25 b. 2.5 c. 0.25 d. 2.05



8) 4.79 = ...

a. $4\frac{79}{100}$ b. $4\frac{79}{10}$ c. $79\frac{4}{100}$ d. $79\frac{4}{10}$

9) 0.4 is equal to ....

a. 0.04 b. $\frac{40}{10}$ c. 0.40 d. $\frac{4}{100}$

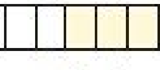
10) $\frac{2}{100}$ = ...

a. 0.2 b. 0.20 c. $\frac{20}{10}$ d. 0.02

11) 0.7 = ...

a. $\frac{10}{7}$ b. $\frac{100}{7}$ c. $\frac{7}{100}$ d. $\frac{7}{10}$

12) The decimal which represents the colored parts is ....



a. 0.3 b. 0.6 c. 0.7 d. 1

Lessons 3 - 4

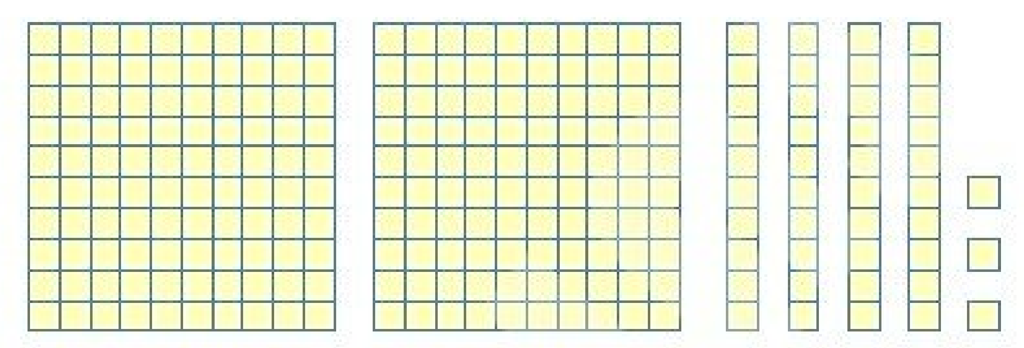
• Place value of decimals
• Different forms of decimals



The place value of decimals:

	376.25					
Place value	Hundreds	Tens	Ones	.	Tenths	Hundredths
Value	300	60	7		0.2	0.05

Different forms of decimals:



- Standard form: 2.43
- Expanded form: 2 + 0.4 + 0.03
- Unit form: 2 ones, 4 tenths, 3 hundredths
- Word form: two and forty-three hundredths

EX:

Standard form	Expanded form	Unit form	Word form
36.7	30 + 6 + 0.7	3 tens, 6 ones, 7 tenths	Thirty-six and seven tenths
4.65	4 + 0.6 + 0.05	4 ones, 6 tenths, 5 hundredths	Four and sixty-five hundredths
8.05	8 + 0.05	8 ones,5 hundredths	Eight and five hundredths
426.35	400 + 20 + 6 + 0.3	4 hundreds, 2 tens, 6 ones, 3 tenths	Four hundred twenty-six and three tenths



Exercise 2

1. Write the value and the place value of the underlined digit:

Number	Value	Place value
6.2$\underline{5}$	....	....
$\underline{8}$0.2	....	....
7.$\underline{5}$	....	....
$\underline{2}$47.81	....	....
1$\underline{9}$.3	....	....
0.$\underline{4}$	....	....
5.0$\underline{8}$	....	....

Number	Value	Place value
$\underline{8}$.32	....	....
$\underline{2}$5.25	....	....
4.1$\underline{0}$	....	....
0.$\underline{4}$5	....	....
$\underline{2}$9.1	....	....
3.3$\underline{3}$	....	....
5.$\underline{4}$2	....	....

2. Complete:

	Number	Expanded form	Word form
1)	2.5	....	....
2)	1.24	....	....
3)	2.04	....	....
4)	4.52	....	....
5)	25.6	....	....
6)	6.80	....	....
7)	0.79	....	....
8)	20.05	....	....
9)	3.6	....	....
10)	4.28	....	....
11)	327.45	....	....

3. Write the number in the unit form:

	Number	Unit form
1)	4.52	....
2)	2.8	....
3)	12.3	....
4)	0.71	....
5)	2.43	....

4. Write the number in the standard form:

	Number	Standard form
1)	5 + 0.5 + 0.01	....
2)	2 + 0.07	....
3)	3 + 0.8	....
4)	0.5 + 0.08	....
5)	20 + 0.6 + 0.03	....
6)	40 + 2 + 0.08	....

5. Write the number in the standard form:

	Number	Standard form
1)	Nine and forty-three hundredths	....
2)	Two and fifty hundredths	....
3)	Sixty-nine hundredths	....
4)	Seven and four tenths	....
5)	Forty and two tenths	....
6)	One and five hundredths	....

6. Write the number in the standard form:

	Number	Standard form
1)	5 ones, 6 tenths, 8 hundredths	....
2)	7 ones, 9 hundredths	....
3)	4 tens, 6 ones, 7 tenths, 9 hundredths	....
4)	5 tenths, 3 hundredths	....
5)	3 tens, 7 hundredths	....

7. Complete:

1) The value of the digit 6 in the number 2.65 is ....
2) The value of the digit 5 in the number 7.85 is ....
3) The value of the digit 3 in the number 24.32 is ....
4) The value of the digit 6 in the number 5.63 is ....
5) The value of the digit 4 in the number 3.94 is ....
6) The smallest value of the digit 2 in the number 2.22 is ....
7) The place value of the 5 in the number 12.15 is ....
8) The place value of the 7 in the number 3.67 is ....
9) The place value of the 6 in the number 2.65 is ....
10) The place value of the 7 in the number 37.9 is ....
11) Five and three tenths = ...
12) Two and nineteen hundredths = ...
13) Five and five hundredths = ...
14) 6 tens and 8 tenths = ...
15) 5 ones, 6 tenths, 8 hundredths = ...
16) 2 ones, 3 tenths, 5 hundredths = ... [as a decimal]
17) The standard form of: 8 ones, 5 tenths, 7 hundredths is ....

18) The standard form of: 2 ones, 1 tenth, 9 hundredths = ...

19) 2 + 0.1 + 0.03 = ... [in standard form]

20) 4 + 0.3 + 0.08 = ... [in standard form]

21) 6 + 0.6 + 0.06 = ...

22) 3 + 0.3 + 0.03 = ...

23) 3.2 = ... + 0.2

24) 4.9 = 4 + ...

25) 60.57 = ... + ... + ... [in expanded form]

26) 4.73 = ... + ... + ... [in expanded form]

27) 6.17 = ... + ... + ... [in expanded form]

28) 12.08 is .... [as words form]

29) 4.52 is .... [in unit form]

30) 8.5 = ... [in unit form]

8. Answer the following:

1) **Write the standard form for:** 4 + 0.7 + 0.09

....

2) **Write the number 3.27 in:**
- Word form: ....
- Expanded form: ....

3) **Write the required forms for the decimal number 4.27**
- Word form: ....
- unit form: ....

4) a tree with a length of $5\frac{45}{100}$. represent the length of the tree in decimal form, then in word form.
- decimal form: ....
- word form: ....

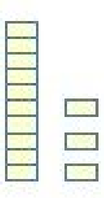
5) **Write 3 different values of the digit 9 in the number 9.99**

....

9. Choose the correct answer:



1) The decimal which represents
The following model is ....



a. 1.3　　b. 0.3　　c. 0.13　　d. 0.12



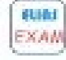
2) The value of the digit 9 in the number 0.19 is ....

a. 9　　b. 0.09　　c. 0.9　　d. 90



3) The place value of the digit 3 in the number 5.63 is ....

a. Ones　　b. Tens　　c. Tenths　　d. Hundredths



4) The number which the has the value of the digit 6 is 0.6 is ....

a. 61.45　　b. 6.75　　c. 12.68　　d. 2.06



5) The word form of 0.6 is ....

a. Sixty　　b. Six tenths
c. Six　　d. Six hundredths



6) The expanded form for the number 3.15 is ....

a. 3 + 0.2 + 0.05　　b. 3 + 0.1 + 0.05
c. 5 + 0.1 + 0.3　　d. 1 + 0.3 + 0.5



7) The expanded form for the number 2.35 is ....

a. 2 + 0.5 + 0.03　　b. 2 + 0.3 + 0.05
c. 3 + 0.5 + 0.02　　d. 5 + 0.2 + 0.03



8) The standard form for the number:
3 ones, 5 tenths, 7 hundredths is ....

a. 3.57　　b. 3.75　　c. 7.53　　d. 5.37



9) 4 ones, 6 tenths, 2 hundredths = ...

a. 6.42　　b. 2.46　　c. 4.62　　d. 2.64

10) Four and thirty-two hundredths = ...

a. 0.43 b. 4.32 c. 40.32 d. 4.23

11) Thirty-three hundredths = ...

a. 3300 b. 30.03 c. $\frac{33}{10}$ d. 0.33

12) Two and eight hundredths = ...

a. 2.8 b. 2.08 c. 8.2 d. 280

13) 71 hundredths equals ....

a. $\frac{7}{100}$ b. 0.21 c. 0.71 d. $\frac{17}{100}$

14) 53 hundredths = ...

a. $\frac{5}{100}$ b. 0.8 c. 0.53 d. $\frac{35}{100}$

15) Five tenths = ...

a. 50 b. 0.5 c. 0.05 d. 5.05

16) 5 + 0.7 + 0.02 = ...

a. 0.572 b. 27.5 c. 5.72 d. 5.27

17) 4 + 0.2 + 0.03 = ...

a. 4.23 b. 3.24 c. 2.43 d. 4.32

18) 3 + 0.3 + 0.03 = ...

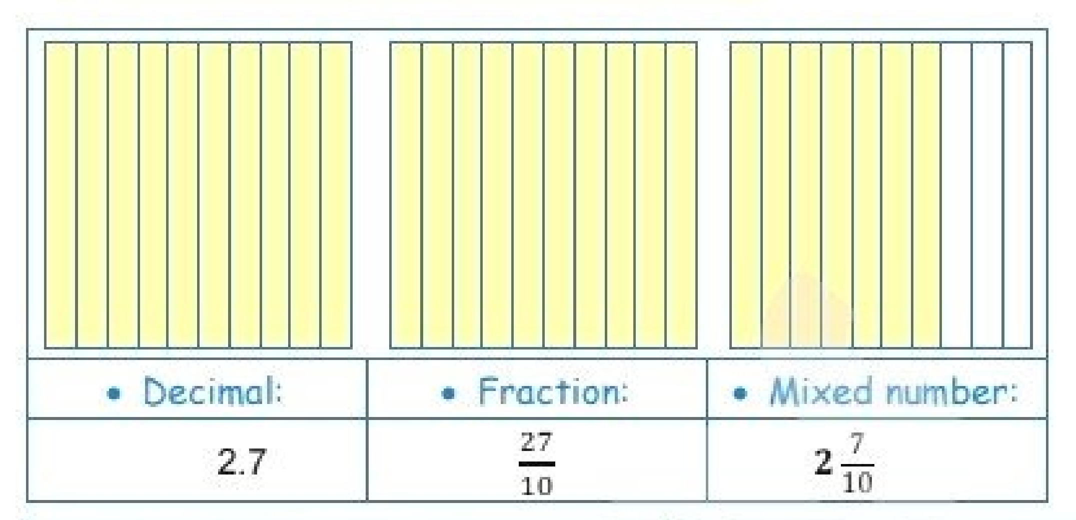
a. 0.33 b. 3.3 c. 3.33 d. 33.3

19) 2.65 = 2 + ...

a. 65 b. 0.065 c. 0.65 d. 6.5



Same value in different forms:

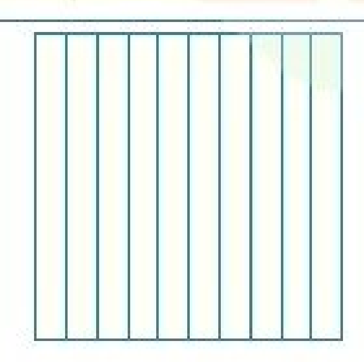


• Decimal:	• Fraction:	• Mixed number:
2.7	$\frac{27}{10}$	$2\frac{7}{10}$

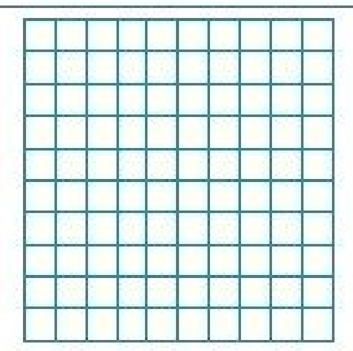
Convert from decimal to fraction:	Convert from decimal to fraction:	
• $0.6 = \frac{6}{10}$	• $\frac{35}{100} = 0.35$	• $\frac{5}{10} = 0.5$
• $0.03 = \frac{3}{100}$	• $\frac{647}{100} = 6.47$	• $3\frac{19}{100} = 3.19$
• $2.14 = \frac{214}{100} = 2\frac{14}{100}$	• $\frac{8}{100} = 0.08$	• $4\frac{1}{10} = 4.1$



The parts of whole one:



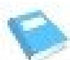
- There are 10 tenths in the whole one.
- $1 = 10 \text{ tenths} = \frac{10}{10}$



- There are 100 hundredths in the whole one.
- $1 = 100 \text{ hundredths} = \frac{100}{100}$

- $2.8 = 28 \text{ tenths} = \frac{28}{10}$
- 7 = 70 tenths = 700 hundredths
- $1.3 = 130 \text{ hundredths} = \frac{130}{100}$
- 3.4 = 34 tenths = 340 hundredths

1. Write as a fraction:

 1) 0.3 = ...

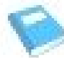
 2) 5.97 = ...

 3) 0.23 = ...

 4) 0.67 = ...

 5) 10.05 = ...

 6) 3.4 = ...

 7) 0.02 = ...

 8) 4.79 = ...

2. Complete:

 1) **1.5**
- Tenths: ....
- Fraction: ....



 2) **3**
- Tenths: ....
- Fraction: ....

 3) **1**
- Hundredths: ....
- Fraction: ....

 4) **10.8**
- Hundredths: ....
- Fraction: ....

3. Complete:

 1) 2.4 = ... tenths

 2) 7.5 = ... tenths

 3) 7 tenths = ... hundredths

4) The number of hundredths in the one whole = ...

5) The number of tenths in the number 8 = ...

6) 4.5 tenths = ... [as a decimal]

7) $3\frac{3}{100}$ = ... [as a decimal]

8) $3\frac{75}{100}$ = ... [as a decimal]

9) 3.7 = ... $\frac{\dots}{\dots}$ [as a mixed number]

10) 3.4 = ... [as an improper fraction]

 11) 1.9 = $\frac{\dots}{10}$ [as a fraction]

12) 5.3 = $5\frac{\dots}{10}$

13) 18.5 = ... [in a fraction form]

14) 0.07 = ... [as a fraction]

15) 0.23 = ... [as a fraction]

16) 0. 7 = ... [as a fraction]

4. Answer the following:

1) A tree of length 37 Tenths meters, express the length as a decimal number, and what is the number in Hundredths ?

....

....

5. Choose the correct answer:

1) 29 tenths = ...

a. 0.29 b. 2.9 c. 9.2 d. 90.2

2) Thirty-six tenths = ...

a. 0.36 b. $\frac{36}{100}$ c. $\frac{36}{10}$ d. $3\frac{6}{100}$

3) 473 hundredths = ...

a. 0.7 b. 4.73 c. 47.3 d. 473

4) 47 hundredths = ...

a. 0.47 b. 4.7 c. $\frac{47}{10}$ d. 0.74

5) 7 tenths = ... hundredths

a. 70 b. 7 c. 10 d. 17

6) 3.4 = ... tenths

a. 34 b. 340 c. 3.4 d. 0.34

7) 0.7 = ... tenths

a. 70 b. 700 c. 0.7 d. 7

8) 1.5 = ... tenths

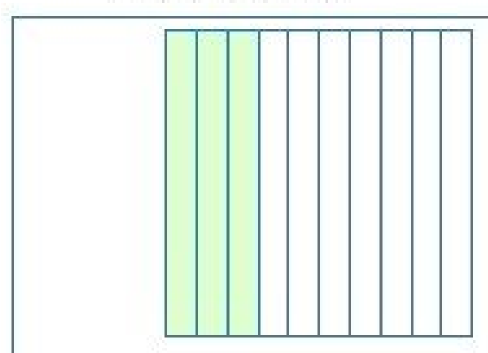
a. 1.5 b. 0.15 c. 15 d. 150

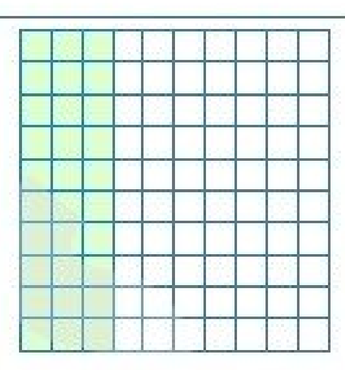
Lessons 7	Equivalent decimals



Equivalent fractions and decimals:

- Equivalent fractions are the fractions which have the same value in different forms.





$$\frac{3}{10} = \frac{30}{100}$$

0.3 = 0.30

Three tenths = thirty hundredths

EX:

Write the equivalent fraction and the equivalent decimal of each of the following:

Number	Equivalent fraction	Equivalent decimal
$\frac{40}{100}$	$\frac{4}{10}$	0.4
0.50	$\frac{5}{10}$	0.5
$\frac{8}{10}$	$\frac{80}{100}$	0.80
0.1	$\frac{10}{100}$	0.10



1. Complete:

1) $\frac{20}{100} = \frac{\dots\dots}{10}$

2) $\frac{200}{100} = \frac{\dots\dots}{10}$

3) $\frac{4}{10} = \frac{40}{\dots\dots}$

4) $\frac{5}{10} = \frac{50}{\dots\dots}$

5) $2\frac{8}{10} = 2\frac{\dots\dots}{100}$

6) $\frac{10}{100} = \frac{\dots\dots}{10}$

7) $\frac{90}{100} = \frac{\dots\dots}{10}$

2. Choose the correct answer:



1) $\frac{70}{100} = \frac{7}{\dots\dots}$

a. 10 b. 100 c. 1,000 d. 10,000

2) $\frac{3}{10}$ is equivalent to $\frac{\dots\dots}{100}$

a. 3 b. 30 c. 0.3 d. 13

3) 0.4 is equivalent to ....

a. $\frac{4}{100}$ b. $\frac{1}{4}$ c. $\frac{10}{4}$ d. $\frac{4}{10}$

4) $\frac{2}{10}$ is equivalent to ....

a. 0.20 b. 0.02 c. 2.0 d. 2.2

5) Which fraction is equivalent to 0.3?

a. $\frac{30}{10}$ b. $\frac{3}{100}$ c. $\frac{3}{10}$ d. $\frac{300}{100}$

Lessons 8 - 9

Comparing decimals



Comparing decimals:

Compare using place value chart:

- **Compare 0.34 and 0.62**

Ones	.	Tenths	Hundredths
0	.	3	4
0	.	6	2

0.34 < 0.62

- **Compare 1.58 and 5.03**

Ones	.	Tenths	Hundredths
1	.	5	8
5	.	0	3

1.58 < 5.03

- Compare whole parts.
- If the whole parts are equal, compare decimal parts from tenths

EX: **compare using > , < or =:**

- 0.8 > 0.5
- 0.9 > 0.75
- 1.53 < 3.24
- 3.7 = 3.70



Comparing decimals and fractions in different forms:

- To compare decimals in different forms, make them in the same form, then compare them.

EX: **compare using > , < or =:**

- 0.35 < $\frac{4}{10}$ (0.35, 0.4)
- 3 ones, 5 tenths > 3.05 (3.5, 3.05)
- 27 tenths > 0.27 (2.7, 0.27)
- 1.06 = $\frac{106}{100}$ (1.06, 1.06)

1. Compare by using > , < or =:

1) 49.3 ...... 4.93
2) $2\frac{6}{10}$ 2.06
3) $\frac{16}{100}$ 0.34
4) 0.2 ...... 0.18
5) $\frac{6}{100}$ 0.6
6) 9.4 ...... 4 ones, 9 hundredths
7) 40.5 ...... 4 tens, 5 hundredths
8) 9.32 ...... nine and twenty-three hundredths
9) 2.5 ...... 2.58
10) 0.7 ...... seven tenths

2. Answer the following:

1) Adam drank 0.6 titer of juice. Omar drank $\frac{4}{10}$ liter of juice. **Who drank more?**

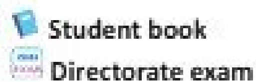
....

....

2) Gamal's home is 0.44 kilometer from the school, while Hany's home is $\frac{6}{10}$ kilometer from the school. **Who walks the longer distance to the school?**

....

....



Exercise 5

3. Choose the correct answer:

1) 0.4 ...... 0.34

a. < b. > c. = d. Otherwise

2) 4.5 ...... 4.51

a. < b. > c. = d. Otherwise

3) 0.9 < ....

a. 0.7 b. 0.15 c. 0.8 d. 1.2

4) 7 tenths ...... $\frac{17}{100}$

a. < b. > c. = d. Otherwise

5) Which of the following is wrong statement?

a. 0.34 < 0.4 b. 0.45 > 0.04 c. 0.23 < 0.3 d. 0.54 = 0.45

6) 0.6 ...... 0.59

a. < b. > c. = d. Otherwise

7) 2.5 ...... 2.58

a. < b. > c. = d. Otherwise

8) 50.02 ...... 20.05

a. < b. > c. = d. Otherwise

9) 1.03 ...... 5.7

a. < b. > c. = d. Otherwise

10) 0.7 ...... 7 tenths

a. < b. > c. = d. Otherwise

11) Which is the correct statement?

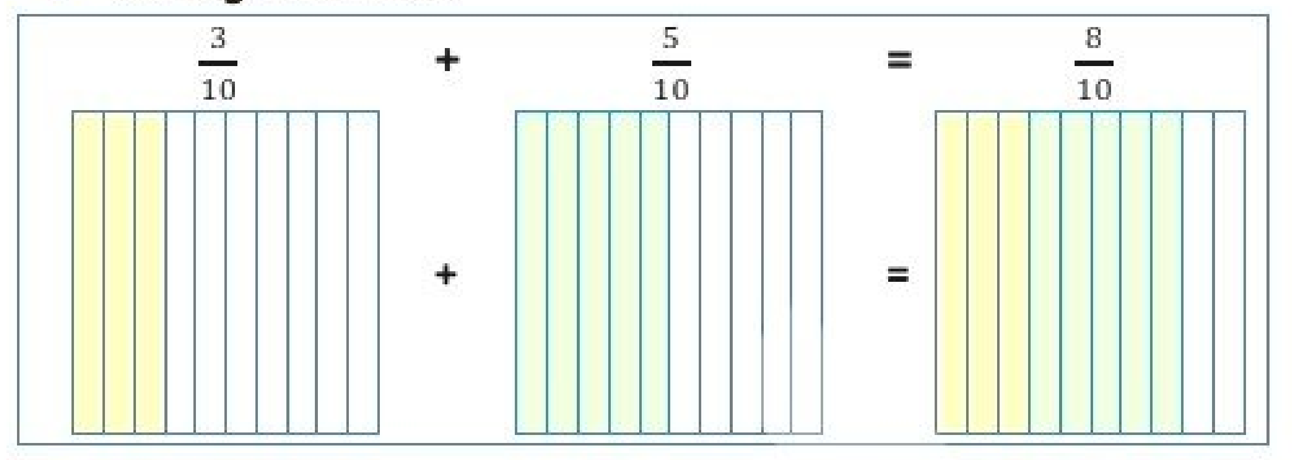
a. 8.03 = 8.3 b. 5.3 < 5.14 c. 74.8 < 7.48 d. 0.55 > 0.52

Lessons 10 - 11

Adding fractions with denominators 10 and 100



Adding fractions:



EX:

- $\frac{2}{10} + \frac{4}{10} = \frac{6}{10}$
- $3\frac{1}{10} + 2\frac{4}{10} = 5\frac{4}{10}$
- $2\frac{7}{10} + 5\frac{8}{10} = 7\frac{15}{10} = 8\frac{5}{10}$
- $\frac{3}{10} + \frac{5}{10} + \frac{4}{10} = \frac{12}{10} = 1\frac{2}{10}$
- $\frac{23}{100} + \frac{45}{100} = \frac{68}{100}$
- $3\frac{45}{100} + 2\frac{34}{100} = 5\frac{79}{100}$
- $\frac{86}{100} + \frac{43}{100} = \frac{129}{100} = 1\frac{29}{100}$



Adding using equivalent fractions:

- $\frac{3}{10} + \frac{42}{100} = \frac{30}{100} + \frac{42}{100} = \frac{72}{100}$
- $2\frac{5}{10} + 4\frac{67}{100} = 2\frac{50}{100} + 4\frac{67}{100} = 6\frac{117}{100} = 7\frac{17}{100}$

1. Complete:

1) $\frac{90}{100} = \frac{\dots\dots}{10}$

2) $\frac{2}{100} + \frac{5}{10} =$ ....

3) $\frac{6}{10} + \frac{40}{100} =$ ....

4) $\frac{4}{10} + \frac{4}{100} =$ ....

5) $\frac{2}{10} + \frac{50}{100} =$ ....

6) $\frac{4}{10} + \frac{5}{100} =$ ....

7) $\frac{32}{100} + \frac{15}{100} =$ ....

8) $2\frac{3}{10} + 4\frac{5}{100} =$ .... [as mixed number]

9) $\frac{69}{100} + \frac{2}{10} =$ .... [in the decimal form]

10) $\frac{3}{10} + \frac{46}{100} =$ .... [in the decimal form]

11) $\frac{1}{10} + \frac{33}{100} =$ .... [in the decimal form]

12) $\frac{4}{10} + \frac{3}{10} + \frac{2}{10} + \frac{4}{10} =$ ....

13) $\frac{3}{10} - \frac{17}{100} =$ ....

2. Answer the following:

1) Hady has $\frac{6}{10}$ L of juice. He add $\frac{40}{100}$ L of juice to them. **How many liters does he have in all?**

....

2) Hosam walked $\frac{5}{10}$ kilometers then he walked $\frac{21}{100}$ kilometer.
How long did Hosam walk to his home?

....

3) Hana bought a piece of cloth of length $\frac{8}{10}$ meter and mona bought another piece of length $\frac{25}{100}$ meter.
What is the total length of the two pieces?

....

4) Aya had $1\frac{5}{10}$ kilogram of rice. She bought another $1\frac{25}{10}$ kilogram. she used all amount to cook a meal.
How much rice did she use?

....

5) Mina walked $\frac{5}{10}$ kilometer, then he walked another $\frac{35}{10}$ kilometer.
How long did Mina walk altogether [fraction and decimal]?

....

6) Hana bought a pizza pie and divided into 10 equal portions, she gave Soha 0.3 of the pizza and gave Nora 0.5 of the pizza.
What decimal is the remainder?

....

3. Choose the correct answer:

1) $\frac{3}{10} + \frac{6}{100} =$ ....

a. $\frac{36}{10}$　　b. $\frac{60}{10}$　　c. $\frac{36}{100}$　　d. $\frac{63}{100}$

2) $\frac{1}{10} + \frac{11}{100} =$ ....

a. 0.12　　b. 0.21　　c. 2.1　　d. 1.2

3) $\frac{7}{10} + \frac{2}{10} = \frac{\ldots\ldots}{100}$

a. 9　　b. 90　　c. 5　　d. 50

5) $3\frac{2}{10} = 3\frac{\ldots\ldots}{100}$

a. 2.000　　b. 200　　c. 20　　d. 2

6) $\frac{3}{10} + \frac{4}{10} =$ ....

a. 8　　b. 0.5　　c. 0.7　　d. $\frac{7}{10}$

7) $\frac{2}{10} + \frac{3}{10} + \frac{9}{10} =$ ....

a. 10.5　　b. 10.4　　c. 1.4　　d. 4.1

Unit 11: Graphs

Lessons	
Lessons 1	• **Different graphs**
Lessons 2 - 3	• **Creating graphs**

Lessons 1 — Different graphs



Bar graph:

- Bar graph is used to compare objects by using bars.

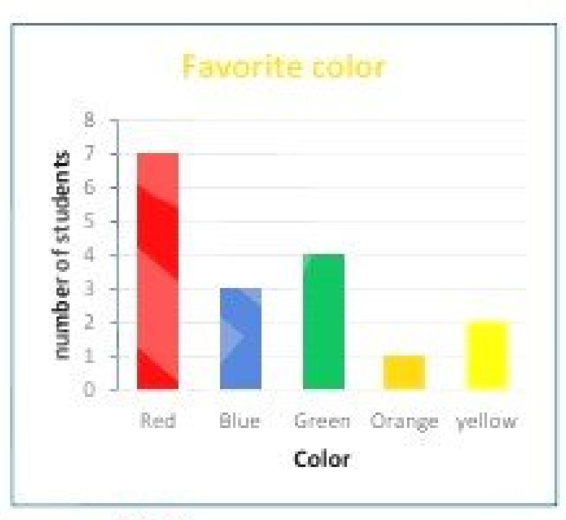
EX:

- Favorite (animal – color – sport – food – fruit – season – subject)
- Student marks.

Example:

Observe the opposite bar graph and answer the following questions:

Color	Number of students
Red	7
Blue	3
Green	4
Orange	1
Yellow	2



a. Which is the most favorite color? Red

b. Which is the least favorite color? Orange

c. How many students like green? 4



Line plot:

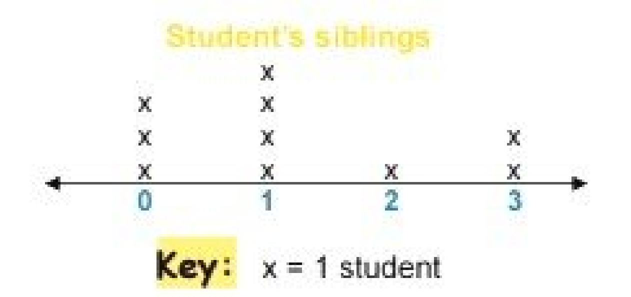
- Line plot is used to show the frequency of data on a number line.

EX:

- Measurements (Length – time – height – weight – distance)
- Number of (siblings – pets)

Example:

siblings	Number of students
0	3
1	4
2	1
3	2





Double bar graph:

- Double bar graph is used to display two sets of data on the same graph using two different colors of bars.

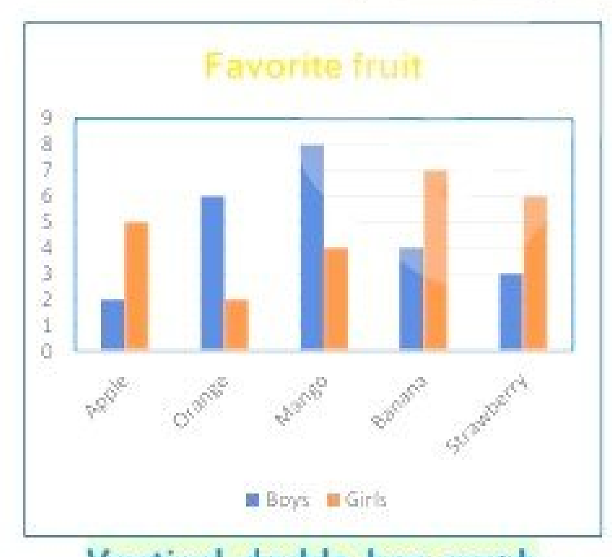
EX:

- Favorite (food – color – subjects) between boys and girls.
- Student marks of two subjects.

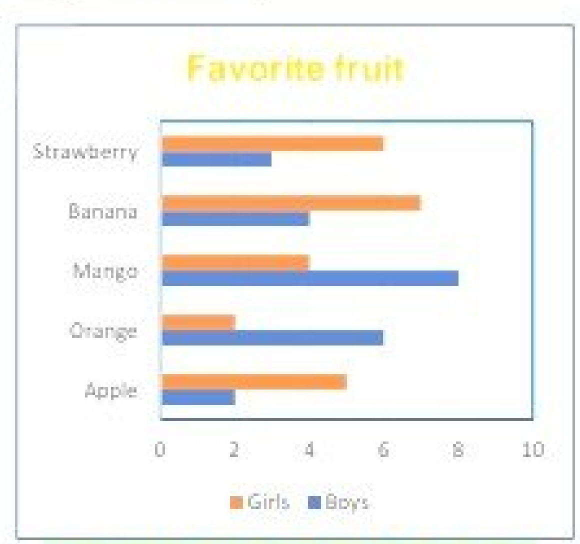
Example:

Observe the opposite bar graph and answer the following questions:

Favorite fruit		
Fruit	**boys**	**girls**
Apple	2	5
Orange	6	2
Mango	8	4
Banana	4	7
strawberry	3	6

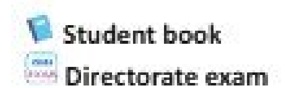


Vertical double bar graph



Horizontal double bar graph

a. Which is the most favorite fruit of the girls? **Banana**
b. Which is the least favorite fruit of the boys? **Apple**
c. How many boys like strawberry? **3**
d. How many students like orange? **6 + 2 = 8**



1. Answer the following:

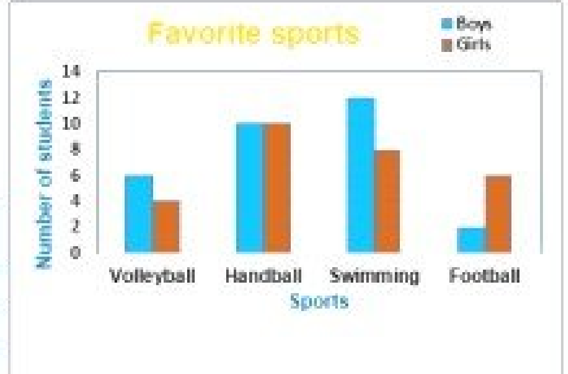
1) By using the opposite graph

a. How many boys prefer swimming?

....

b. How many girls prefer volleyball?

....

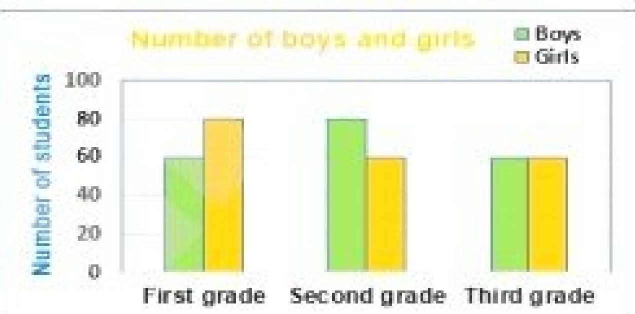


c. Complete the table

	Volley ball	Hand ball	swimming	football
Boys	......	......	......	......
Girls	......	......	......	......

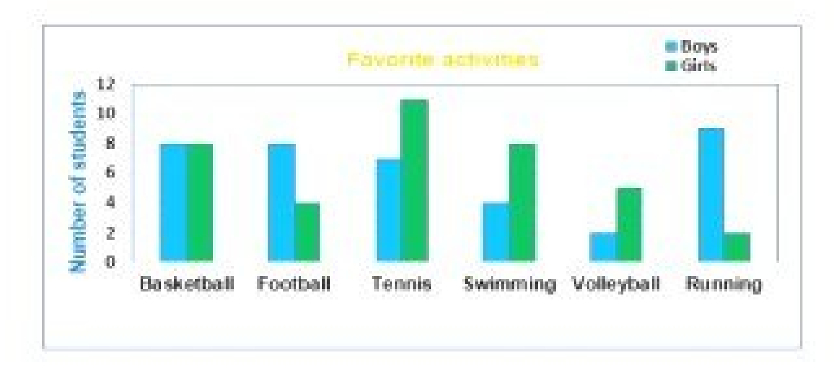
2) Use the following double bars graph to answer the questions:

a. What is the number of boys in first grade? ....
b. What is the number of girls in third grade? ....
c. In which grade the number of boys is equal to the number of girls? ....



3) The following data shows the favorite activities between boys and girls, study the graph then answer the questions:

a. How many boys liked football? ....
b. How many girls liked swimming? ....
c. Which sports show the same number of boys and girls? ......



4) From the following graph:

a. Which grade has the same number of students who like fruits and vegetables?

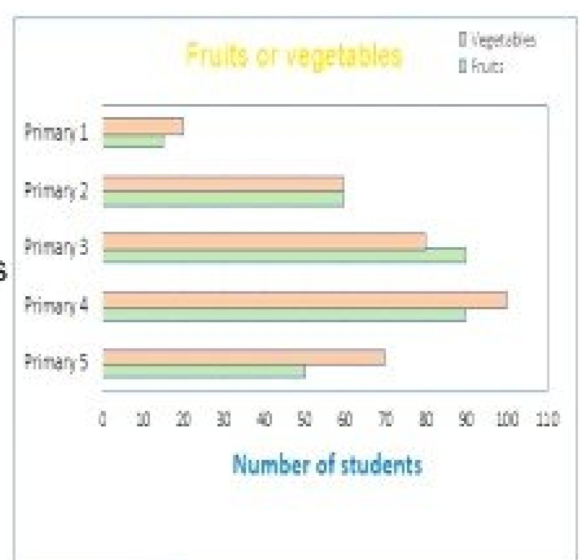
....

b. What is the total number of the students who like vegetables and fruits in grade 4?

....

c. Which grade likes vegetables more than fruits?

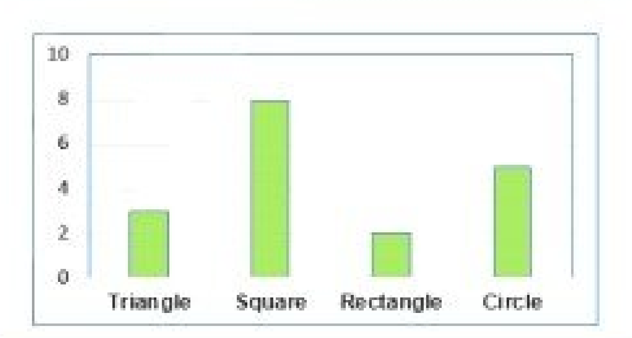
....



5) From the opposite bar graph:

Find the number of squares

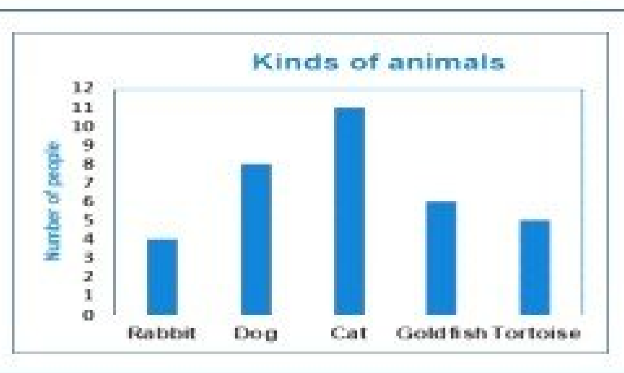
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6) In the following bar graph:

Find the number of people who liked dog.

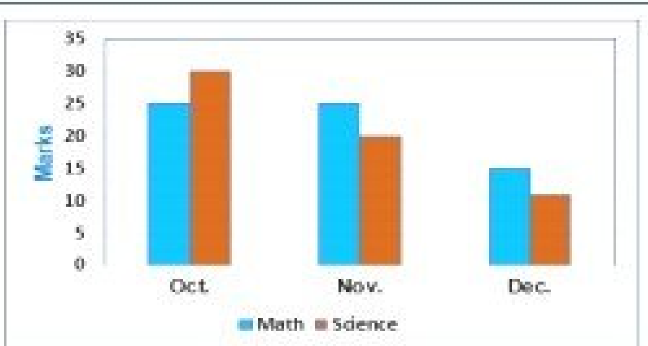
....



7) The following graph shows Ali's marks in math and science over three months.

In which month does Ali get the greatest mark in science?

....





8) **By using the opposite lie plot**
Find the number of children whose ages are 10 years old

....

x	x x	x x x	x x	x
6	8	10	12	14

ages

Key: x = 2 children



9) **The table shows the internet usage for four friends in hour.**
Who use the internet least time?

....

Name	Saly	Fady	Amira	Ali
No. of hours	$\frac{1}{4}$	$1\frac{1}{2}$	$\frac{1}{3}$	1



10) **In the graph: no. of pages read by Ahmed, Ali and Samir, answer the following:**



a. Who read more than Samir?

....

b. Who read the least pages?

....

c. How many pages were read by all?

....

d. Find the difference between Ahmed and Ali?

....

11) Write three different ways for representing data.

1. .... **2.** .... **3.** ....

1. Choose the correct answer:



1) The opposite graph shows mark for four students, which student got lowest mark?



a. Farida b. Samah c. Alaa d. Yara



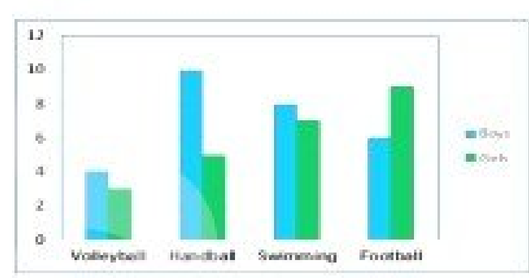
2) The opposite graph shows ....



a. Pictograph
b. Line plot
c. Bar graph
d. Double bar graph



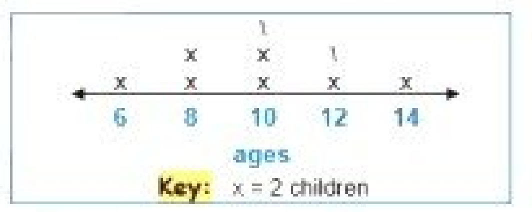
3) The number of girls in handball equals?



a. 4
b. 10
c. 7
d. 5



4) The opposite graph shows a ....



a. Line plot
b. Double bar
c. Pictograph
d. Bar graph



5) Which type graphs is suitable for this data?

Name	Ali	Ola	Nora
Age	13	17	15

a. Double bar graph
b. Line plot
c. Bar graph
d. pictograph

6) The following table can be represent by ....

Name	Arabic	Math	Science	English
Boys	30	35	39	40
Girls	25	40	39	30

a. Double bar graph
b. Line plot
c. Bar graph
d. pictograph

7) The horizontal and vertical lines of graph are called ....

a. Titles
b. Axes
c. Keys
d. Number of sets

8) Which of the following can be represented by a line plot?
a. Our favorite movie
b. Our favorite animal
c. Our height
d. Our favorite food

9) Which of the following can be represent by double bar graph?
a. Sleeping hours every night
b. Favorite food
c. Maximum and minimum temperature in different cites
d. Length of 5 things on your desk

10) .... is the representation of data through individual columns
a. Bar graph
b. Double bar graph
c. Pictograph
d. Line plot

11) When the data is number, use .... to represent on the number line.
a. Bar graph
b. Double bar graph
c. Pictograph
d. Line plot

12) Which of the following can be represented by a double bar graph?
a. Favorite animal
b. Our shoe sizes
c. Marks of friends in Math and Arabic
d. Favorite color

13) To represent the number of walking hours for Ahmed and Hassan in one week you can use ....
a. Line plot
b. Double bar
c. Pictograph
d. Bar graph

14) To compare between rain fall in Egypt in the two years 2022 and 2023, we use ....
a. Line plot
b. Double bar graph
c. Pictograph
d. Bar graph

Lessons
2 - 3

Creating graphs



How to create a line plot with fractions:

- Draw a number line starting with the smallest value and end with the greatest value.
- Put " x" above the number to represent each value.
- Write the title.

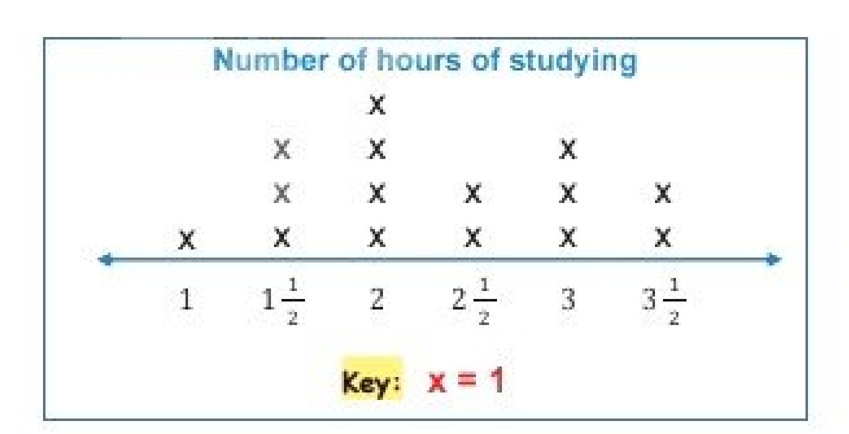
EX:

Elias records data about the number of hours spent studying Math and the data as follows:

2	$1\frac{1}{2}$	$3\frac{1}{2}$	2	3
$2\frac{1}{2}$	1	3	$1\frac{1}{2}$	2
3	$1\frac{1}{2}$	$3\frac{1}{2}$	2	$2\frac{1}{2}$

Represent the data by a line plot

Sol:





How to create a double bar graph:

- Draw two axes.
- Write the suitable scale.
- Draw the bars according to its values.
- Color the bars.
- Write the legend.
- Write the title of graph.

Example:

The opposite table shows the marks obtained by the four students Sara, Aya, seif and Noha in the exam of Math and Science.

Students' marks		
Name of student	Math	science
Sara	25	30
Aya	20	25
Seif	25	25
Noha	15	20

Represent these data by a double bar graph.

Sol:





1. Answer the following:



1) These data show the distance from home to school for students. The data are given in kilometers.

Create a line plot for the given data.

$\frac{3}{5}$ km	$\frac{2}{5}$ km	$\frac{2}{5}$ km	$\frac{5}{5}$ km	$\frac{4}{5}$ km	$\frac{2}{5}$ km	$\frac{4}{5}$ km	$\frac{5}{5}$ km	$\frac{4}{5}$ km	$\frac{4}{5}$ km	$\frac{1}{5}$ km

....

....

....

....

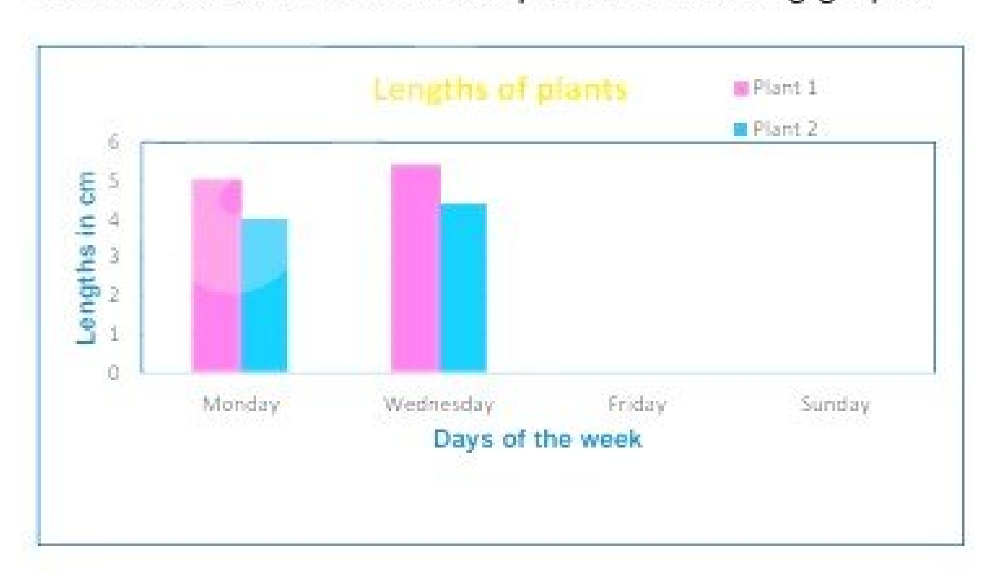
....



2) Kamal recorded the lengths of two types of plants in four days as follow:

	Mon.	Wed.	Fri.	Sun.
Plant (1)	5 cm	$5\frac{2}{5}$ cm	6 cm	$6\frac{1}{5}$ cm
Plant (2)	4 cm	$4\frac{2}{5}$ cm	$4\frac{3}{5}$ cm	5 cm

a. Use the above data to complete the following graph.



b. In plant [1], what's the amount of increasing in its length from Monday to Sunday?

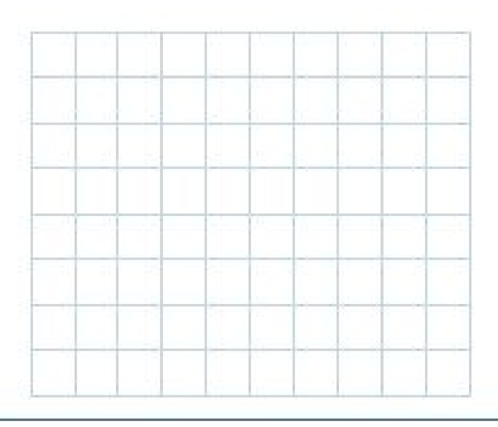
....



3) The following table shows number of Liters Nour drank during some days of the week.

Represent data by a bar graph.

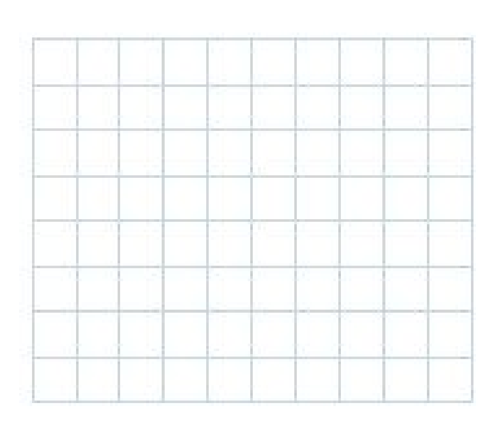
Days	Saturday	Sunday	Monday
Liters	$1\frac{1}{2}$	2	3





4) **Represent the following data by bars:**

Student	Distance in meters
Tahani	$1\frac{1}{2}$
Salah	$1\frac{1}{2}$
Ziad	$1\frac{1}{2}$
Waleed	$1\frac{1}{2}$



Unit 12: Geometry

Lessons	Topics
Lessons 1 - 2	• Geometric concepts • The relation between two lines
Lessons 3 - 4	• symmetry
Lessons 5 - 6	• Classifying angles • Drawing angles
Lessons 7 - 8	• Classifying triangles • Drawing triangles
Lessons 9	• Classifying quadrilaterals

Lessons 1 - 2

• Geometric concepts
• The Relation between two lines

Geometric concepts:

point	• Is exact location in space	A	Point A	A
Line (straight line)	• Goes on forever in two directions • Has no endpoints	A B	Ray AB Or Ray BA	$\overleftrightarrow{AB}$ or $\overleftrightarrow{BA}$
Line segment	• Part of line • Has two endpoints • The shortest distance between two points	A B	Line segment AB Or Line segment BA	$\overline{AB}$ or $\overline{BA}$
Ray	• Part of a line • Has starting point and has no end point • Extends forever in only one direction	A B	Ray AB	$\overrightarrow{AB}$

- $\overrightarrow{AB}$ not the same $\overrightarrow{BA}$

The relation between two lines:

Parallel lines	• Never intersect	A B C D	Line AB parallel to line CD
Intersecting lines	• Intersects at one point called " point of intersection"	A D M C B	Line AB intersects line CD
Perpendicular lines	• Intersects at one point • Form four square corners	A C M D B	Line AB perpendicular to line CD

- All perpendicular lines are also intersecting.

1. Complete

1) The opposite figure is called ....
2) The figure is called ....
3) The figure is named ....
4) The ray AB is represented by the symbol ....
5) The line AB is represented by the symbol ....
6) the starting point in the opposite figure A B is ....
7) .... has a starting point and no endpoint.
8) The two lines are ....
9) The two lines are ....
10) The two perpendicular straight lines make .... square corners
11) The two .... lines cannot intersect.
12) The number of points of intersecting of two parallel lines = ...
13) The number of points of intersecting of two intersecting lines = ...

2. Answer the following:

1) Draw the line LM is parallel to the line AB

2) Draw the line segment CD parallel to the ray XY

3) Draw the line XY is intersects with the ray LM in the point S

4) Draw a line segment XY

3. Choose the correct answer:

1) The opposite figure ◄—•A———•B—► is named as ....

a. $\overrightarrow{AB}$ b. $\overrightarrow{BA}$ c. $\overleftrightarrow{BA}$ d. $\overline{AB}$

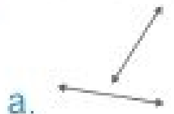
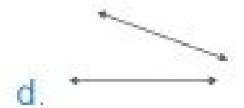
2) The name of •————•► is ....

a. Line   b. Angle   c. Ray   d. Straight

3) A / An .... is a part of a line and has two end points.

a. Point   b. Line segment
c. Angle   d. Straight line

4) The shape that shows a ray is ....

a.    b.   c.   d. 

5) The opposite lines are ....

a. perpendicular   b. intersecting   c. parallel   d. Obtuse

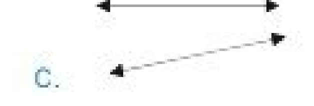
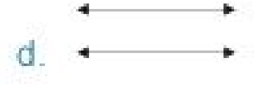
6) The opposite lines are ....

a. perpendicular   b. parallel
c. intersecting and not perpendicular   d. not intersecting

7) Which of the following figures shows two parallel lines?

a.   b.   c.   d.

8) Which of the following figures shows two perpendicular lines?

a.    b.   c.    d. 

9) The two opposite figures represent .... lines

a. Intersecting   b. Perpendicular   c. Parallel   d. Otherwise

• Symmetry

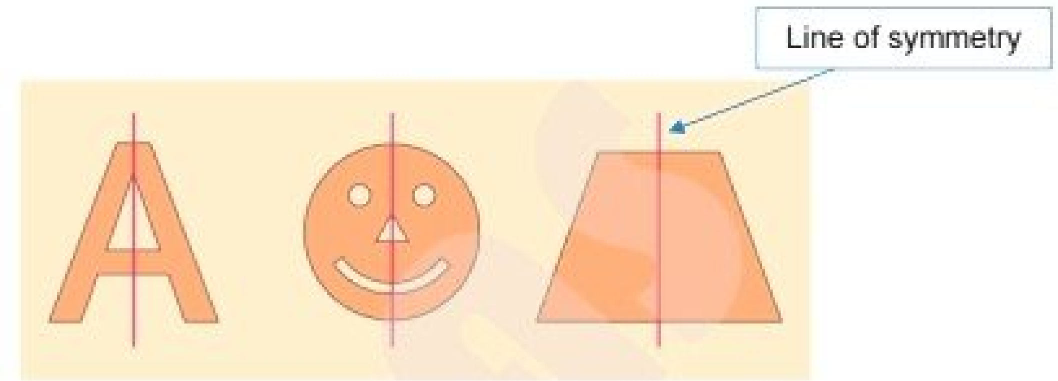


Symmetry:

- **Symmetrical figure:** is the figure can be folded into two congruent parts that fit on top of each other
- **Line of symmetry:** is the line that divides a shape into two identical parts.

EX:

Line of symmetry





Notes:

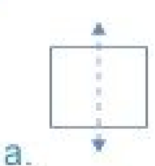
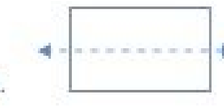
	Square	Rectangle	Rhombus	Parallelogram
Shape				
Number of lines of symmetry	4	2	2	0

1. Choose the correct answer:

 **1)** Which of the following shows a line of symmetry?

 a.  b. c.  d.

2) All the following figures show a line of symmetry except …………

 a.  b.  c. d.

3) has …………line of symmetry.

a. 2 b. 0 c. 4 d. 1

 **4)** The number of lines of symmetry that can be drawn in the opposite figure is …………



a. 4 b. 3 c. 2 d. 1

 **5)** All the following symbols has line of symmetry except …………

a. W b. A c. M d. F

 **6)** The number of lines of symmetry of the rectangle is …………

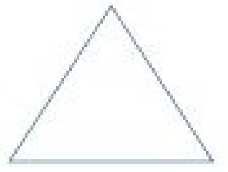
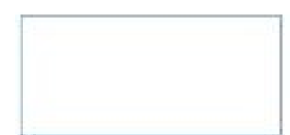
a. 0 b. 1 c. 2 d. 4

7) The number of lines of symmetry of the symbol X = …………

a. 1 b. 2 c. 3 d. 4

2. Answer the following:

 **1)** Draw one line of symmetry of each figure:

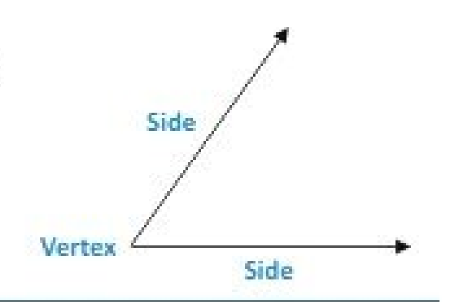
 

• Classifying angles
• Drawing angles



The angle:

- Angle formed from two rays have the same end points.
- The common endpoint is called vertex.
- The two rays are called sides of the angle.

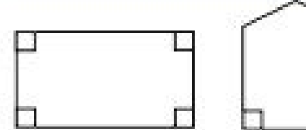




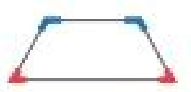
Kinds of angles:

Right angle	Acute angle	Obtuse angle
Formed from two perpendicular rays.	Less than right angle.	Greater than right angle.

- For any polygon:
  Number of sides = number of angles

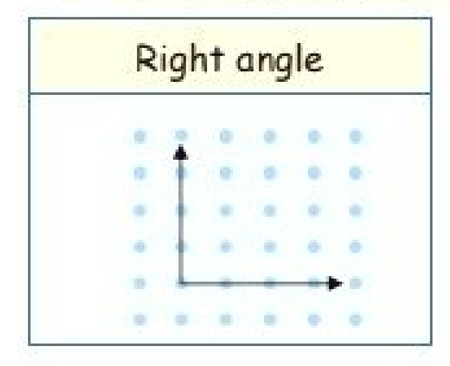
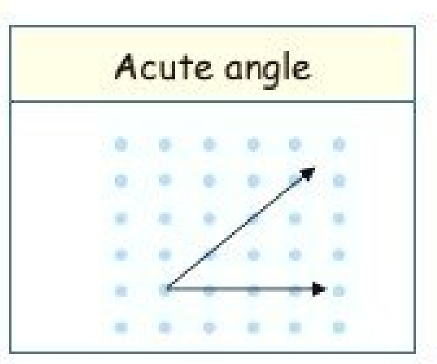
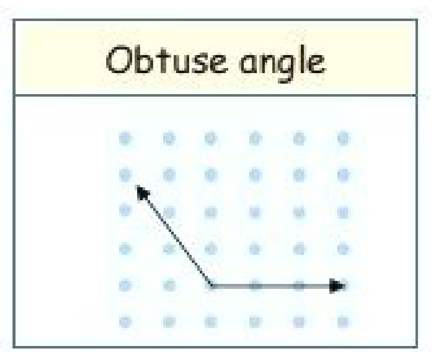


- Blue angles: obtuse angles
- Red angles: acute angles





Drawing angles:

Right angle	Acute angle	Obtuse angle
		

1. Complete

1) The opposite angle represents .... angle.

2) The opposite angle represents .... angle.

3) The opposite angle represents .... angle.

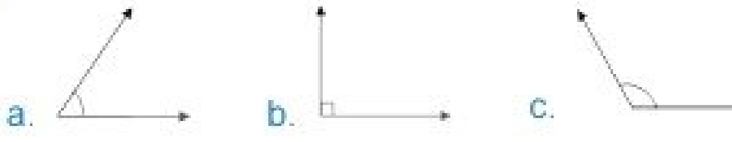
4) An .... angle less than right angle.

5) An .... angle more than right angle.

6) The number of acute angles in the opposite figure is ....

2. Choose the correct answer:

1) Which figure shows a right angle?



d.

2) The opposite figure is representing .... angle

a. Acute b. Obtuse c. Right d. Straight

3) The measure of the acute angle .... The measure of right angle

a. $>$ b. $<$ c. $=$ d. Otherwise

4) The measure of the acute angle ..... The measure of obtuse angle

a. $>$ b. $<$ c. $=$ d. Otherwise

5) .... angle is less than right angle in measure.

a. Acute b. Obtuse c. Right d. Straight

Lessons 7 - 8

• Classifying triangles
• Drawing triangles

Classifying triangles by lengths of their sides:

Equilateral triangle	Isosceles triangle	Scalene triangle
• All three sides are equal in length	• Two sides are equal in length	• No sides are equal in length

Classifying triangles by measure of their angles:

Acute triangle	Right triangle	obtuse triangle
• All three angles are acute angles.	• One right angle. • Two acute angles.	• One obtuse angle. • Two acute angles.

Notes:

- Equilateral triangles are always acute triangles.
- Any triangle has at least 2 acute angles.
- Equilateral triangle has 3 lines of symmetry.
- Isosceles triangle has 1 line of symmetry.
- Scalene triangle has no line of symmetry.

1. Complete

1) The .... triangle has no equal sides.
2) In equilateral triangle, there are three sides are .... in length.
3) The triangle with equal sides is called .... triangle.
4) The triangle has two equal sides is called .... triangle.
5) The triangle that its sides are 3 cm, 3 cm and 5 cm is called ......
6) The triangle that its sides are 5 cm, 5 cm and 5 cm is named .....
7) The type of triangle whose side lengths are 4 cm, 5 cm and 6 cm is ....
8) ABC is an equilateral triangle where AB = 4 cm, then BC = ... cm
9) A triangle whose side lengths are 8 cm, 8 cm and ...... cm is an equilateral triangle.
10) Any triangle has at least .... acute angles.
11) Number of sides of the right triangle = ... sides
12) Number of lines of symmetry of an equilateral triangle is ....
13) The type of the opposite triangle is .... angle triangle.
14) The opposite figure is .... Triangle according to its angles.

2. Choose the correct answer:

1) The triangle is .... triangle.
   a. Acute b. Right c. Obtuse
2) The opposite triangle is .... triangle.
   a. Right b. Acute c. Obtuse d. Equilateral

3) The opposite triangle is ………… triangle.

a. Right b. Acute c. Obtuse d. Equilateral

4) The opposite triangle has ………… Right angle.

a. 0 b. 1 c. 2 d. 3

5) the equilateral triangle has ………… equal side.

a. 0 b. 1 c. 2 d. 3

6) The isosceles triangle has ………… equal sides.

a. 0 b. 1 c. 2 d. 3

7) The triangle has different sides is called …………

a. Isosceles b. Scalene c. Equilateral d. Otherwise

8) Any triangle has at least ……… acute angle.

a. 1 b. 2 c. 3 d. 4

9) The scalene triangle has ……… equal sides.

a. 0 b. 1 c. 2 d. 3

10) ………… Triangle has 3 equal sides.

a. Scalene b. Isosceles c. Equilateral d. Right

11) The triangle of side length of 5 cm, 6 cm, 7 cm is called …………

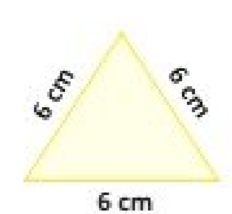
a. Isosceles b. Scalene c. Equilateral d. Otherwise

3. Answer the following:



1) 1. the type of the opposite triangle according to its angle is ………………

2. the perimeter of triangle = ……… cm





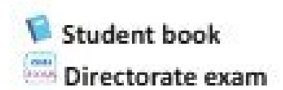
Classifying quadrilaterals:

- **Parallel lines:** the lines can go on forever and never intersect.
- **Quadrilateral:** is a polygon which has 4 sides.
- **Parallelogram:** is a quadrilateral which has each two opposite sides are equal in length and parallel.
- **Pair of sides:** each two sides.

Name	Shape	Parallel sides	Length of sides	Angles
Square		• 2 pairs of parallel sides	• All sides are equal	• All angles are equal
Rectangle		• 2 pairs of parallel sides	• 2 pairs of equal sides	• All angles are equal
Rhombus		• 2 pairs of parallel sides	• All sides are equal	• 2 pairs of equal angles
Parallelogram		• 2 pairs of parallel sides	• 2 pairs of equal sides	• 2 pairs of equal angles
Trapezium		• 1 pair of parallel sides	----	----

Notes:

- The square has 4 right angles.
- The rectangle has 4 right angles.
- The polygon which has 5 sides is called pentagon.



1. Complete

1) The square has .... right angles.
2) The rectangle has .... right angles.
3) The .... has only one pair of a parallel sides.
4) The quadrilateral that has 4 equal sides and 4 right angles is called ....
5) All of the following △ , ▭ , ▱ , □ are quadrilaterals except ....
6) The parallelogram which its angles are right is ....
7) The following shape ▱ is called ....

2. Choose the correct answer:

1) The quadrilateral that has equal sides with 4 right angles is a ......
   a. Rectangle b. Square c. Trapezium d. Rhombus

2) A square has ....
   a. 2 acute angles
   b. 4 right angles
   c. 4 different angles
   d. 2 obtuse angles

3) A parallelogram has ....
   a. 4 right angles
   b. 4 equal sides
   c. 1 pair of parallel sides
   d. 2 pair of parallel sides

4) A rectangle has .... right angles
   a. 2 b. 3 c. 4 d. 1

5) A rhombus has .... equal sides.
   a. 0 b. 1 c. 2 d. 4

6) A square has .... equal sides.
   a. 3 b. 4 c. 5 d. 6

7) The .... has one pair of two parallel sides.

a. Trapezium b. Parallelogram c. Rhombus d. Square

8) .... has 4 right angles.

a. Rectangle a. Parallelogram b. Rhombus c. Trapezium

9) .... is a rectangle with 4 equal sides.

a. Square b. Parallelogram c. Rhombus d. Trapezium

10) The polygon which has 5 sides is called ....

a. Quadrilateral b. Pentagon c. Hexagon d. Octagon

11) The parallelogram which has 4 equal sides is a ....

a. Trapezium b. Rectangle c. Square d. Rhombus

Unit 13: Angles of a circle

Lessons 1	• Types of angles in a circle
Lessons 2	• Measuring angles using a circle model
Lessons 3 - 4	• Measuring angles using a protractor
Lessons 5 - 7	• Drawing angles using a protractor • Classifying triangles using geometric tools

Types of angles in a circle



Types of angles in a circle:



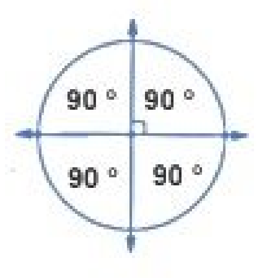
- Degree: is a unit of measuring angle and its symbol " ° ".
- There are 360 degrees in a circle.

Classifying the angles by their measurements:

Acute angle	Right angle	Obtuse angle	Straight angle
$0° < \text{Acute} < 90°$	$90°$	$90° < \text{Obtuse} < 180°$	$180°$



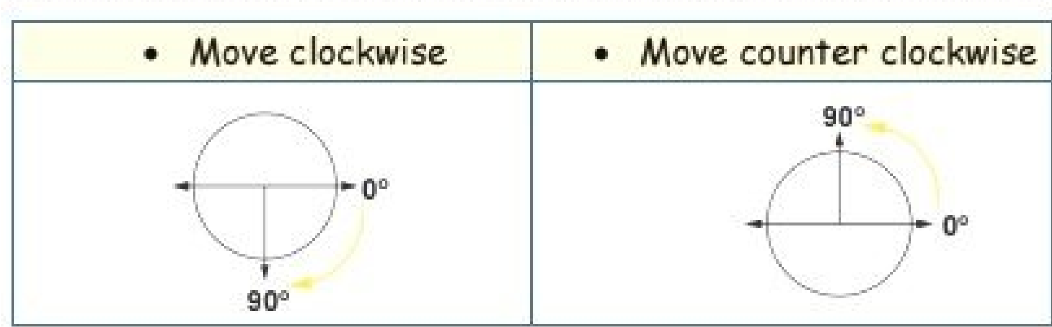
Notes:



- There are 360° in a circle.
- The circle has 4 right angles.
- The right angle is representing $\frac{1}{4}$ of a circle.
- The straight angle is representing $\frac{1}{2}$ of a circle.

Directions of drawing angles on a circle:

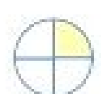
To draw any angle on the circle there are two directions we can use as follow:



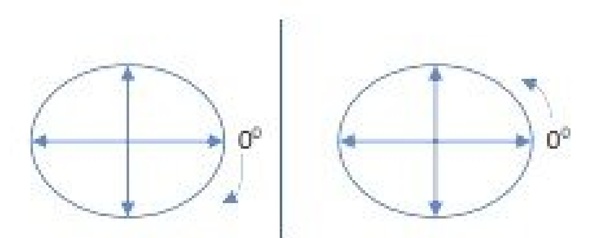
- 0° is always the starting point.
- 360° means a full rotation.

1. Complete

1) The measure of acute angle is less than .... °
2) The measure of right angle = ... °
3) The measure of straight angle is .... °
4) .... measures between 0 ° and 90 °
5) The angle whose measure 90 ° is .... angle
6) The angle which its measure 30 ° is .... angle
7) The angle with measure 65 ° is .... angle
8) The angle which its measure 120 ° is called .... angle
9) The angle which its measure 170 ° is .... angle
10) 84 ° is classified as .... angle
11) The measure of the central angle which represents $\frac{1}{4}$ of a circle is .... °
12) $\frac{1}{4}$ of the opposite circle measured .... °

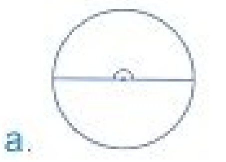
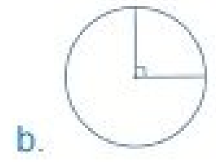
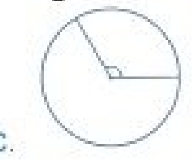


2. Move from 0° in the given direction and draw a right angle. Then, label 90° and 180° degrees on each circle:



3. Choose the correct answer:

1) Which of the following figures shows a $\frac{1}{2}$ of full rotation ....

a. 
b. 
c. 
d. 

2) The measure of straight angle = ... the measure of the circle

a. $\frac{1}{2}$ b. $\frac{1}{3}$ c. $\frac{1}{4}$ d. $\frac{1}{5}$

3) There are .... degrees in a circle.

a. 360° b. 180° c. 25° d. 90°

4) The circle can be divided into .... right angles

a. 1 b. 2 c. 3 d. 4

5) The angle whose measure is less than 90° is .... angle

a. Acute b. Straight c. Right d. Obtuse

6) Which is a measure of an acute angles?

a. 40° b. 90° c. 120° d. 180°

7) The measure greater than 0° and less than 90° is a measure of .... angle

a. Acute b. Straight c. Right d. Obtuse

8) The angle whose measure is 99° is called .... angle

a. Acute b. Straight c. Right d. Obtuse

9) .... angle measures between 90° and 180°

a. Acute b. Straight c. Right d. Obtuse

10) The right angle measure exactly .... °

a. 90 b. 30 c. 0 d. 61

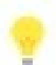
11) The measure of straight angle is .... °

a. 108 b. 118 c. 180 d. 90

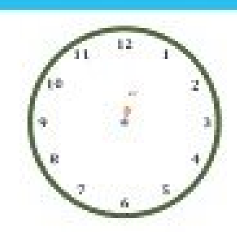
12) The angle which its measure 88° is called .... angle

a. Acute b. Right c. Obtuse d. Reflex

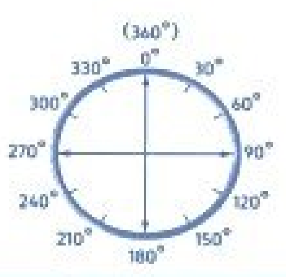
Measuring angles using a circle model



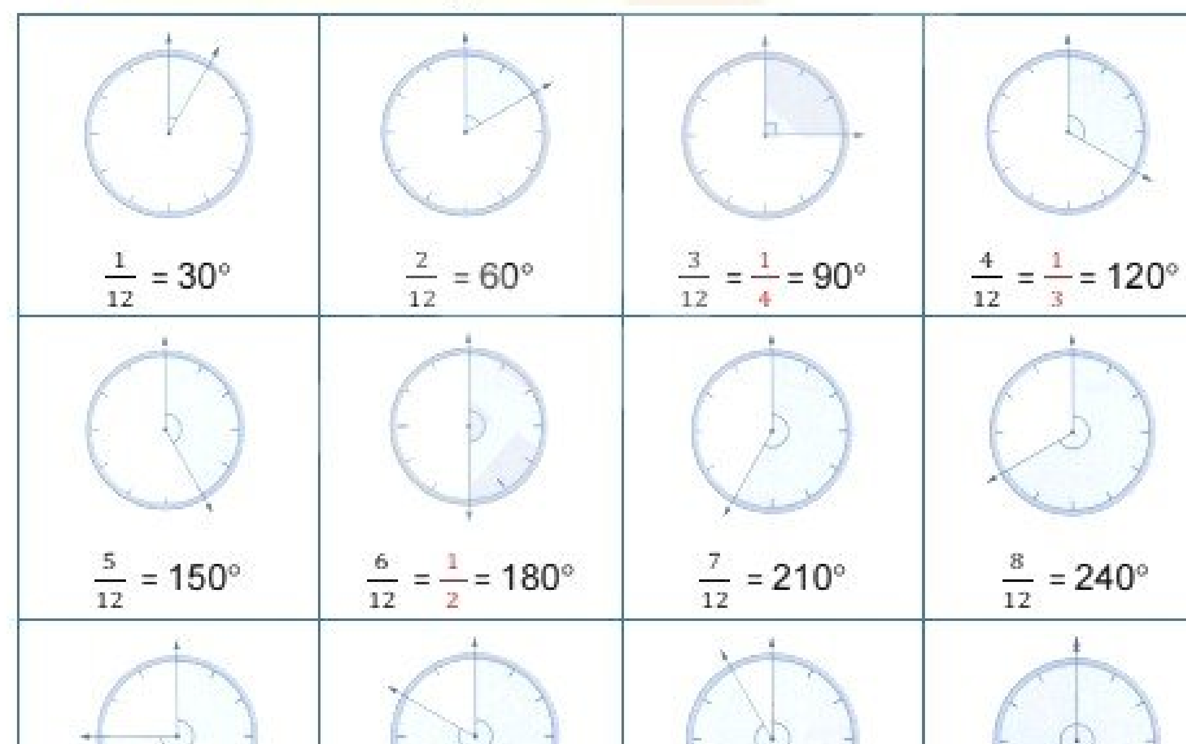
Angles on a clock face:



- The measure of a circle is 360°
- We divide a clock face into 12 equal angles.
- Each angle represents $\frac{1}{12}$ of the circle.
- The measure of each angle is equals to 30°



Fractions and angles on a clock:



$\frac{1}{12} = 30°$	$\frac{2}{12} = 60°$	$\frac{3}{12} = \frac{1}{4} = 90°$	$\frac{4}{12} = \frac{1}{3} = 120°$
$\frac{5}{12} = 150°$	$\frac{6}{12} = \frac{1}{2} = 180°$	$\frac{7}{12} = 210°$	$\frac{8}{12} = 240°$
$\frac{9}{12} = \frac{3}{4} = 270°$	$\frac{10}{12} = 300°$	$\frac{11}{12} = 330°$	$\frac{12}{12} = 1 = 360°$

1. Write the measure of colored angle in degree:



.... °



.... °

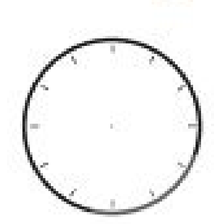


.... °

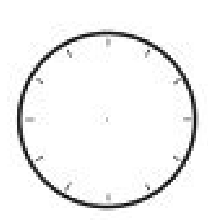
2. Color to represent the suitable angle of each fraction:



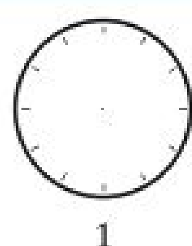
$\frac{2}{12}$



$\frac{3}{12}$



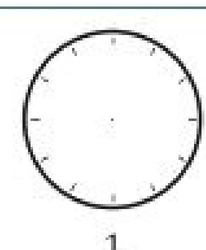
$\frac{8}{12}$



$\frac{1}{4}$



$\frac{1}{2}$

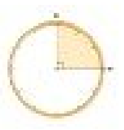


$\frac{1}{3}$

3. Choose the correct answer:



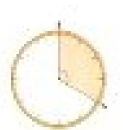
1) The angle which represents the colored part equals ....



a. 30 ° b. 60 ° c. 90 ° d. 120 °



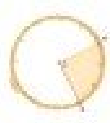
2) The angle which represents the colored part = ...



a. 60 ° b. 120 ° c. 90 ° d. 300 °



3) The angle which represents the colored part equals ....



a. 150° b. 170° c. 100° d. 90°



4) The fraction $\frac{1}{12}$ of a circle makes an angle of measure ..... degrees

a. 30° b. 600° c. 90° d. 120°



5) $\frac{1}{12}$ of a circle measured ....

a. 60° b. 90° c. 180° d. 360°



6) $\frac{1}{3}$ of a circle measured ....

a. 0° b. 120° c. 100° d. 360°



7) Measure of the angle which represents $\frac{1}{4}$ of the circle = ...°

a. 90° b. 180° c. 270° d. 360°



8) Which is a measure of an acute angles?

a. 40° b. 90° c. 120° d. 180°



9) The fraction $\frac{5}{12}$ makes an angle of measure ....

a. 90° b. 150° c. 210° d. 300°

10) The angle which measures 360° represents a fraction of ....

a. $\frac{1}{2}$ b. $\frac{3}{4}$ c. $\frac{12}{12}$ d. $\frac{4}{10}$

11) The related fraction to the angle of measure 180° .... is of a circle

a. $\frac{1}{6}$ b. $\frac{1}{4}$ c. $\frac{1}{3}$ d. $\frac{1}{2}$

Lessons 3 - 4

Measuring angles using a protractor



Naming angles:

- **The angle:** is formed from two rays that have the same end point.
- The common end point is called **vertex**.
- ∠ is the symbol of the angle and read as angle.
- We write the angle by three ways as follows:
  - ✓ ∠ ABC
  - ✓ ∠ CBA
  - ✓ ∠ B

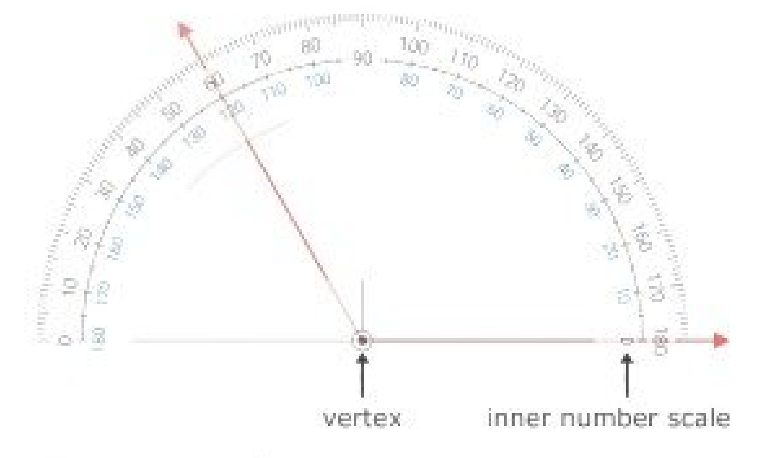
A
side
B
vertex
side
C



Measuring angles by protractor:

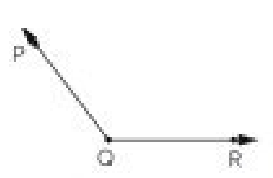
To measure an angle using a protractor, follow the steps below:

1. Line up the vertex of the angle with the dot at the center of the protractor.
2. Line up one side of the angle with 0 degrees on the protractor.
3. Read the protractor to see where the other side of the angle crosses the number scale



This angle measures 120 degrees, or 120°.

1. Write the name of each angle:



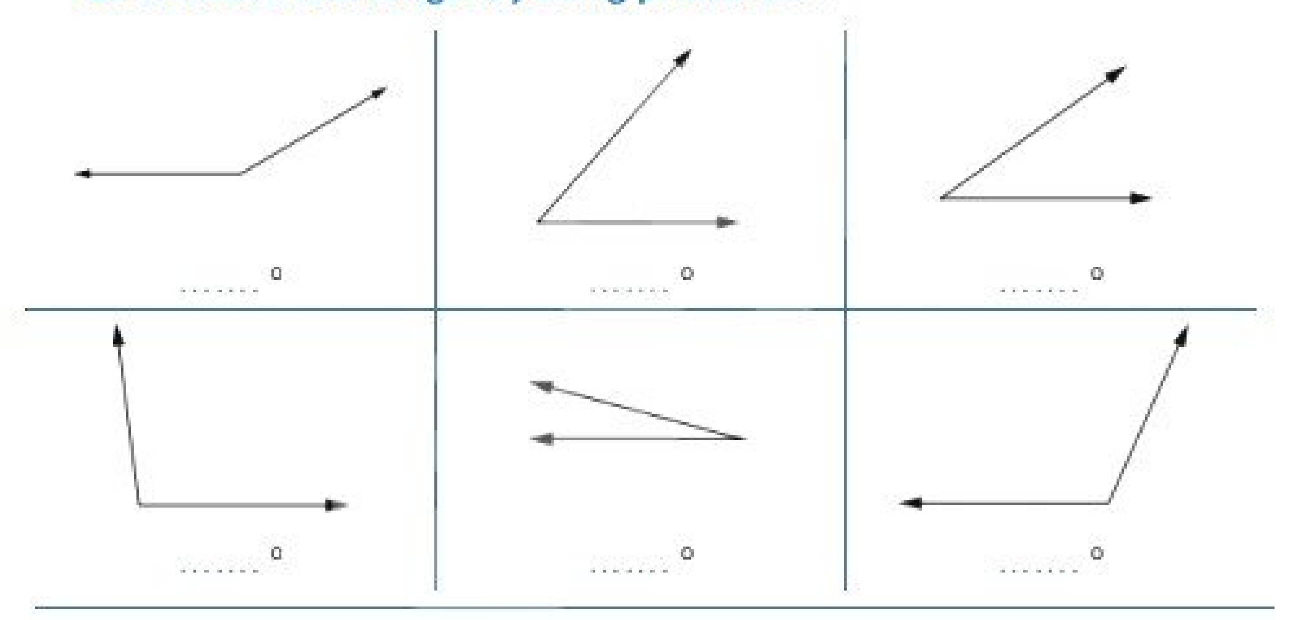
D
E F

U
S T

O
M N

Name 1:	Name 1:	Name 1:	Name 1: ....
Name 2:	Name 2:	Name 2:	Name 2: ....
Name 3:	Name 3:	Name 3:	Name 3: ....

2. Measure each angle by using protractor:



3. Answer the following:

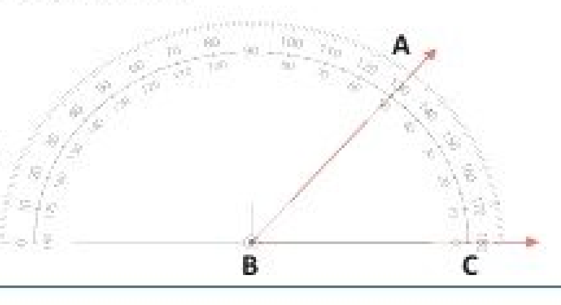


1) Use the opposite angle to answer the questions:

a. Its name is ∠ ....

b. Its type is ....

c. Its measure is ....°

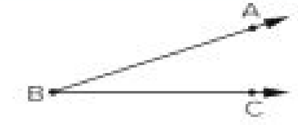




2) In the opposite figure:

a. Name of angle: ....

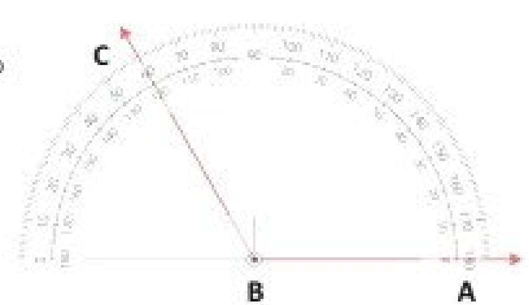
b. Angle type is ....



3) **In the opposite figure:**

a. Its measure is ……. °

b. Its type is ………

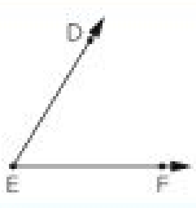




4) a. Name of angle: ∠ ………

b. Type: ………

c. Measure ……. degrees



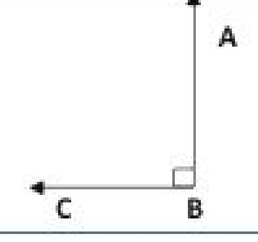


5) **In the opposite figure:**

a. The name of the angle is ……….

b. The type of the angle is ………

c. The measure of the angle = ……. °

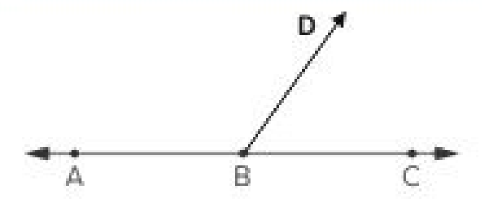




6) **Complete:**

a. ∠ ……… is an acute angle.

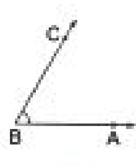
b. ∠ ……… is an obtuse angle.



4. Choose the correct answer:



1) The vertex of the opposite angle is ……….



a. A b. B c. C d. Otherwise



2) The vertex of ∠ ABC is ………

a. A b. B c. C d. Otherwise



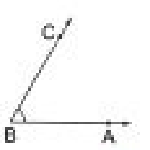
3) The ………… is formed by two rays that have the same endpoint.

a. Point b. Side c. Angle d. vertex

 **4)** One of sides of the angle RHS is ....

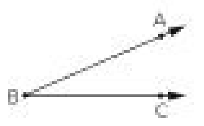
a. $\overrightarrow{RH}$ b. $\overrightarrow{HR}$ c. $\overrightarrow{RS}$ d. $\overrightarrow{SH}$

 **5)** The name of the opposite angle is ....



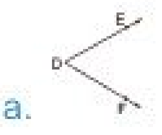
a. ∠ CAB b. ∠ CBA c. ∠ BAC d. ∠ ACB

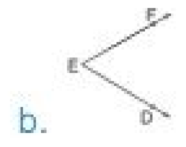
 **6)** The name of the opposite angle is ....

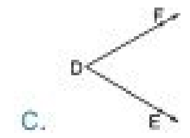


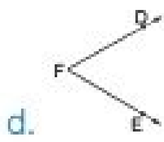
a. ∠ CAB b. ∠ CBA c. ∠ BAC d. ∠ ACB

7) Which angle is named as DEF ?

a. 

b. 

c. 

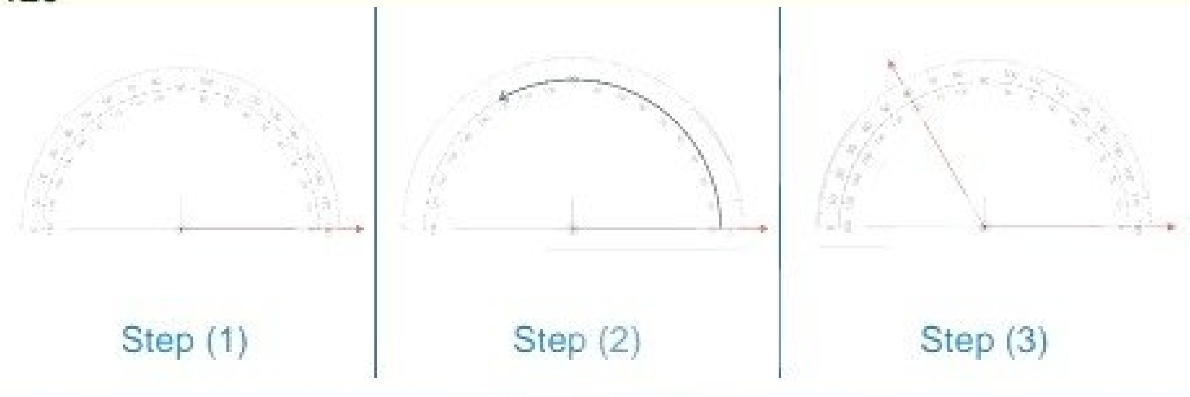
d. 

Lessons 5 - 7	• Drawing angles using a protractor • Classifying triangles using geometric tools

Drawing angles by protractor:

EX: Use the protractor to draw an angle with measure of 120°

Start on the right. Use the numbers along the inside of the protractor since they also start on the right. Follow these numbers, and stop when you get to 120°



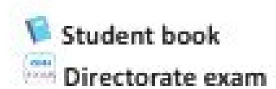
Classifying triangles by lengths of their sides:

Equilateral triangle	Isosceles triangle	Scalene triangle
• All three sides are equal in length	• Two sides are equal in length	• No sides are equal in length



Classifying triangles by measure of their angles:

Acute triangle	Right triangle	obtuse triangle
• All three angles are acute angles.	• One right angle. • Two acute angles.	• One obtuse angle. • Two acute angles.





1. Use the protractor to draw an angle with the given measurement:

1) 90°

2) 100°

3) 60°

4) 110°

5) 30°

6) 50°

7) 80°

8) 120°



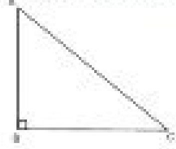
9) **By using the protractor:**
draw the angle with measure 60° ,then determine its type.

10) **By using the protractor:**
draw the angle with measure 90° ,then determine its type.
∠

11) **Draw** ∠ ABC with measure 80° ,and write its type.

12) **By using the protractor:**
draw ∠ ABC with measure 70°

13) **By using geometric instrument find:**
a. Type of Δ ABC with respect to its sides ....
b. Type of Δ ABC with respect to its Angles ....





14) In the triangle XYZ, m (∠ X) = 40° , m (∠ Y) = 40° and m (∠ Z) = 100° .
Write the type of the triangle according to its angles.
....